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ABSTRACT

Papers from the 1978 conference of the North East Association for Institutional Research are presented. The theme of the conference was new responses to new demands. The conference report is divided into the following sections: five papers on planning, nine papers on marketing, five papers on communication, five papers on curricular and faculty issues, two papers on financial aid, two papers on outcome measures, and 11 papers on retention/attrition. (SW)

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Institutional Research:

New Responses to New Demands

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HE 011 618

NEAIR

Papers from the Fifth Annual Meeting of the
North East Association for Institutional Research

October 12, 13 and 14, 1978 • University Park, Pennsylvania

INSTITUTIONAL RESEARCH: NEW RESPONSES TO NEW DEMANDS

Papers from the Fifth Annual Meeting
of the
North East Association for Institutional Research

University Park, Pennsylvania
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PREFACE

The fifth annual conference of the North East Association for Institutional Research was held October 12 through 14, 1978 at the J. Orvis Keller Conference Center on the campus of Pennsylvania State University, University Park, Pennsylvania. The theme of the conference was *New Responses to New Demands* and included subthemes on planning, marketing, retention, outcomes and faculty, financial and curriculum issues.

The keynote address, *Politics and Education: The Odd Couple*, was presented by Dr. Edward McGuire, Chancellor of the Massachusetts Board of Higher Education. H. R. Kells from Rutgers University and Robert Kirkwood from the Middle States Commission on Higher Education presented the opening address, *Analysis of a Major Body of Institutional Research Studies Conducted in the Northeast, 1972-1977: What Should Be Some New Responses?*

One hundred and thirty-four people from twelve states attended the conference and seventy participated in workshops conducted by NEAIR faculty.

The papers printed in this publication do not include all those which were presented - only those submitted for publication by the presenters. A copy of the conference program is presented in the appendix.

The evaluation of the conference was conducted and reported by Larry Benedict, University of Massachusetts, and indicated a positive response and a successful conference. The success was attributable to all of the participants, but especially to Eric Brown, New Hampshire College and University Council, who was program chairman, and to Paul Kenepp, Pennsylvania State University, local arrangements chairman. F. Wally Lester, Conference Coordinator of the Conference Center, was extremely helpful in making the conference a smoothly and professionally orchestrated event.

Much appreciation is extended to Larene Hoelcle, SUNY/Buffalo, member of the NEAIR Publications Committee, for the care which she took in proofreading all of the papers submitted for publication and to Karen Ziolkowski for her care and skill in preparing the proceedings for publication.

Helen Wyant, Chair
NEAIR Publications Committee

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ANALYSIS OF A MAJOR BODY OF INSTITUTIONAL RESEARCH STUDIES CONDUCTED IN THE NORTHEAST, 1972-1977: IMPLICATIONS FOR FUTURE RESEARCH

H. R. Kells
Rutgers University

Robert Kirkwood
Middle States Commission

Several things prompted the analysis which will be described here. The first is the somewhat discouraging realization that despite the much described growth of institutional research capacity in this country in the last ten to fifteen years, there may be something wrong with the primary focus if not the basic conceptualization of such efforts. For the past decade, these authors have worked with several hundred institutions at the point where they were embarking on major attempts to study themselves - with the current institutional research capacity and resultant information as the point of departure. This has been a disheartening experience. The vast majority of institutional research functions appeared to us, and to the institutional leaders with whom we also consulted, to be primarily administrative research organizations - not institutional in the sense that systematic study of programs and student development were at least as important in the scheme of things. We rarely found goal clarification, program effectiveness, institutional goal achievement (outcome) studies, and the like as a major, well developed and valued function of these offices and efforts - and somehow we expected that by the mid-1970's that we would find these things.

This project was supported by funds provided by the Rutgers University Research Council, the Rutgers Graduate School of Library and Information Studies, and the Middle States Commission on High Education. The authors are grateful for this support and for the assistance of Leny Struminger for computer programming and data processing assistance, and of Laura Kells and Eleanor Kells for manuscript preparation.

Second, we are concerned that the search for new institutional research responses - or profiles of activity - will not be a search at all. It may just be a reactive process rather than the kind of proactive stance we would hope for from an institutional research function. So we became quite interested in what it is that institutions are studying on a continuing basis, as part of a general interest in how major institutional self-study projects are conducted and how [illegible] projects can be improved.

We had the opportunity to conduct a major retrospective analysis during 1977-78 of over two hundred self-study processes conducted during the 1971 to 1977 period as part of the institutuional accreditation process in the Middle States region. Using an instrument which was developed and pre-tested with seven institutions in the fall of 1977, (See Figure 1), we surveyed the coordinators of 247 self-study projects to secure facts and opinions about institutional characteristics, self-study process characteristics, and satisfaction with the process. Seventy variables were included in these three categories. We received an 84% response to the survey from the full range of institutional types in the region. As far as we could tell it was a representative and unbiased response. (See Figure 2). The major findings about the self-study processes, satisfaction data and characteristics which appeared to be significantly associated with satisfaction were reported in September at the 4th Annual OECD-IMHE conference in Paris and will be presented in some detail in a major article this fall (1).

What was not presented in any detail in the initial reports is what we wish to present here for the audience best prepared to do something about what we think are some very interesting patterns of institutional study or apparent lack thereof. We sought by analysing this particular data base to examine the following questions:

Figure 1

Middle States Commission on Higher Education
Self-Study Research Project

SURVEY CONCERNING EXPERIENCE WITH INSTITUTIONAL SELF-STUDY AND RELATED MATTERS 1972-1977

☐

(for non-response
follow-up purposes only)

This instrument seeks to gather systematically and anonymously from institutions in the MSA region which have conducted institutional self-studies and which have been reviewed for accreditation purposes during the period July, 1972 to June, 1977, facts about and reactions to the self-study process employed, the perceived impact of the process, and suggestions for future processes. We are asking the person who acted as steering committee chairperson or who coordinated the self-study (or some other knowledgeable person) to complete the instrument and forward it back to the MSA Commission on Higher Education in the stamped, addressed envelope provided. The Commission needs your participation in order to improve the effectiveness of the institutional self-study in our region.

* * * * * * * * *

1. Was your institution aware at the start of the self-study that the MSA Commission on Higher Education is willing to consider the use of various approaches to self-study as your institution prepared for the accreditation review?

Yes ( )1
No ( )2
Don't Know ( )3

2. Had your institution selected a self-study form before a Commission staff person visited the institution? (keep in mind that institutions preparing for initial accreditation must use a comprehensive approach)

Yes ( )1
No ( )2
Don't Know ( )3

3. Did the staff person suggest the use or further encourage the consideration of other than a comprehensive approach?

Yes ( )1
No ( )2
Don't Know ( )3

4. Did the institution respond favorably (accept the advice) to that suggestion?

Yes ( )1
No ( )2
N/A ( )3

5. In what year did your institution initiate its self-study?

1971 ( )1
1972 ( )2
1973 ( )3
1974 ( )4
1975 ( )5
1976 ( )6

6. What general form was chosen for self-study?

(see back of cover page for definitions)

Check (✓) one:

Comprehensive self-study . . . . ( )1
Comprehensive but with one or more special emphases. . . . . ( )2
Selected topics approach . . . . ( )3
Current special study approach . . . . ( )4
Regular institutional research approach. . . . . ( )5

(64 other items followed)

(1) What does analysis of the results of self-study form and comprehensiveness appear to indicate about the breadth of regular institutional research capacity at the 208 respondent institutions of all kinds?

(2) What can we learn about priorities for study from examining the profile of specific studies conducted when institutions had a choice of study topics?

(3) What appears to be the interest of institutions in specific goal achievement (outcome) studies, particularly regarding student development, and especially in light of apparent institutional missions?

(4) How does any of the above relate to major institutional characteristics, to the perceived primary motivation for the major self-study process conducted, and to the perceived satisfaction with that process?

(5) What do the answers to the first four questions tell us about IR needs for the future?

Figure 2

Characteristics of the Respondent Group

Response rate = 84%

Characteristic	Universe* (n=247)	Respondent Group (n=208)	Non-Respondents (n=39)
	%	%	%
Sponsorship			
Public	38	38	44
Private	62	62	56
Highest Degree Offered			
Associate	27	26	26
Baccalaureate	29	33	34
Masters	28	19	21
Doctorate	17	18	18
Other	not avail.	3	2
Size			
5000 or less	69	71	60
More than 5000 (students)	31	29	40

*Universe comprised of all institutions in the Middle States region which conducted self-study processes during the 1971-1977 period in preparation for reaffirmation of accreditation.

Results

Apparent Institutional Research Capacity.

Our findings which relate to the present (and recent) capacity of institutions of all descriptions to study themselves broadly and effectively on an on-going basis as evidenced by the ready availability of basic comprehensive IR data are not encouraging.

Figure (3) describes the five available, sanctioned forms of self-study process available for use by institutions as they begin an institutional accreditation-related self-study in the Middle States region (these are now also used entirely or in part in other regions; see Kells, 1972). In general, as an institution's choice moves from Form 1 to Form 5 it is in response to a perceived and externally recognized increase in the institution's capacity for and current activity in institutional research and self-analysis. Also as is indicated in the chart, the major impetus, comprehensiveness and extent of focus on current problems varies roughly from high to low along this same axis.

What we found was that 49% of the institutions used Form 1, 18% used Form 2, 28% used Form 3, 5% used Form 4 and 0%(!) used Form 5. In other words, it appears that two thirds of the institutions were either advised to or had to use comprehensive studies - because ongoing study at the institution was so limited. Indeed no institution could rely on its present IR capacity to stand in lieu of a fresh study initiative (Form 5). Even when one discounts these figures for those choices toward comprehensiveness which were made for political, training, or other reasons, the record is not good. Let's face it, colleges and universities in these times will not initiate comprehensive, participatory, large study efforts when given a choice to do less, unless they feel that they must study everything from goals to

Figure 3

ATTRIBUTES OF THE FORMS OF SELF-STUDY PROCESSES

	External Impetus	Comprehen- -siveness	Extent of New Effort Expended	Focus on Institutions Current Problems	Adequacy of Ongoing Institutional Research
FORM 1 (Comprehensive)	HIGH	HIGH	HIGH	LOW	LOW
FORM 2 (Comprehensive with Special Emphases)	↕	↕	↕	↕	↕
FORM 3 (Selected Topics Approach)	↕	↕	↕	↕	↕
FORM 4 (Current Special Study Approach)	↕	↕	↕	↕	↕
FORM 5 (Regular Institutional Research Approach	LOW	LOW	LOW	HIGH	HIGH

outcomes - that is, unless it hasn't been done recently or the data are simply not available. These data seem to say that IR capacity, the scope of IR efforts, and the ongoing nature of serious institutional self-evaluation are quite embryonic at American institutions. We would be less disturbed if these findings didn't jibe with our personal experience over the past decade.

Areas Chosen for Study

The second aspect of this general problem we examined concerned the choices institutions made for special studies during a period of concentrated institutional study. In the 106 institutions which chose less than fully comprehensive self-study plans and which chose the areas or problems for study, it is clear that we are not examining the usual level of institutional research (IR) activity at the institutions but rather the approximate reciprocal of that activity. That is, the areas or problems were not necessarily in the priority the IR director would assign, but instead were selected by a group of appointed and/or elected self-study organizers according to what they felt the institution needed to look at. Admittedly, political influences or public relations concerns as well as more rational managerial or other processes are involved in these decisions.

As can be seen in the column marked "total" in Figure (4), we found that curriculum (or program-related studies) was the area chosen most often, our old friend governance studies was next, and goal achievement (outcomes) studies and studies of student services were next with about one third of the institutions chosing these areas. In one sense, these data are encouraging. Perhaps only one-third of the institutions felt they had to do outcome studies. Our further analysis showed (see later figures) that the outcomes studies conducted were very much a partial profile. Discouragingly little work is being done in this area at institutions as recently as the

Figure 4

RELATIONSHIP OF CHOICE OF SPECIAL AREAS FOR STUDY TO HIGHEST DEGREE OFFERED AND INSTITUTIONAL SPONSORSHIP (n=106)

Areas of Study	(1) Assoc.	(2) Bacc.	(3) Masters	(4) Doct.	Significance*	Public	Private	Signif.*	Total
Financial Problems or Projections	0% (-)	36% (+)	29% (+)	21% (-)	(1),(2)+(3),(4) 0.001*	2% (-)	35% (+)	0.000*	19%
Governance	29% (-)	36%	43%	52% (+)	n.s.d.	36%	42%	n.s.d.	40%
Institutional Research Capacity	14%	7%	14%	10%	n.s.d.	18% (+)	6% (-)	0.045*	11%
Goal Achievement (outcomes) Studies	41%	46%	57% (+)	21% (-)	n.s.d.	30%	46%	n.s.d.	38%
Curriculum or Program	62%	64%	57% (-)	79% (+)	n.s.d.	67%	67%	n.s.d.	67%
Student Services	53% (+)	32%	29%	31%	(1),vs.(2)+(3)+(4) 0.031*	50% (+)	27% (-)	0.017*	38%
Enrollment/Admissions	15%	14%	29% (+)	14%	n.s.d.	18%	13%	n.s.d.	16%
Remedial/Developmental Education	38% (+)	4% (-)	14% (-)	3% (-)	0.000*	32% (+)	2% (-)	0.000*	16%
General Educ./Rel'n.to Career Educ.	15%	21%	7%	10%	n.s.d.	14%	13%	n.s.d.	14%
Organization	18% (-)	32%	50% (+)	38%	n.s.d.	32%	33%	n.s.d.	32%
Fund Raising/Fin'l. Development	3%	7%	7%	0%	n.s.d.	0%	7%	n.s.d.	4%
Faculty Development	18%	25%	14%	17%	n.s.d.	22%	15%	n.s.d.	19%
Library/Learning Resources	15%	18%	7% (-)	21%	n.s.d.	16%	16%	n.s.d.	16%
Long-Range Planning	24% (-)	43%	57% (+)	35%	n.s.d.	32%	38%	n.s.d.	36%

*Kruskal-Wallis Test. Signif. =or < 0.050

mid-1970's. By the same token, if two thirds of the institutions felt they had to do programmatic studies, perhaps these data confirm that IR has perforce focused primarily on administrative, financial, enrollment (only one institution of six chose this area) and related areas in recent years. When given a choice, the mandate and cooperation from most sectors, IR officers and academic line officers chose the neglected areas - those things they really wanted to get at - but really didn't have a chance to do during the usual work year.

We examined these chosen areas of study by major institutional characteristics and as they relate to reported major motivation for study and perceived satisfaction with the self-study process. We found almost no variation with institutional size. Only small colleges showed one disproportionate emphasis - financial studies, as you might expect. When we sorted the data by major disciplinary profile (totally liberal arts to totally career/professional) we found no variation except one area of study. The totally liberal arts institutions did proportionately more outcomes studies and the totally career/professional institutions did disproportionately less (a fascinating finding). This is a surprise because of the obvious and often espoused relative ease of looking at competency levels and the like in career areas (compared to liberal arts). Well, the more process-oriented, relatively externally (guild) oriented and/or relatively conservative or traditional stance of these institutions and their professionals may be operating here. Goal achievement (outcomes) studies - that is, beyond standard and traditionally low followup studies of graduates - are relatively new and progressive phenomena.

Finally, when sorted by highest degree level and sponsorship of institution (where purpose/goal differences are heavily expressed) we found three or four significant differences. The publicly sponsored institutions did significantly more studies of IR capacity (!), student services and remedial education (not expected), and less financial studies. The associate degree institutions did no financial studies, much more in the student services area, and of course very much more in the remedial-developmental areas. The only surprises here seem to be the IR emphasis for public institutions (here money might be "talking") and the low emphasis on studies of remediation at other than associate degree schools and in the private sector. This is especially so since struggling private, mostly baccalaureate-level institutions have greatly widened the admissions net, since attrition is a very costly item for these institutions and since the pressure for basic skills studies is still very much with us. These data may change dramatically in the next five years.

When we examined the choice of studies in light of motivation for the study and the perceived satisfaction with the overall process (See Figure 5) two generally interesting aspects are revealed. First, it seems that IR, goal achievement, student service-related, faculty development, learning resources and planning studies are generally positively related to internally motivated studies as opposed to externally ("we do it because some agency says we must") generated self-study. Second, IR,goal achievement, student services, enrollment, general education organization, and learning resources studies are related more or less to perceived improvement and perceived usefulness of the overall self-study - with some of these relating positively to both satisfaction measures.

Goal Achievement (Outcomes) Studies

The final area examined concerned the vital area of goal achievement or "outcomes" studies. Part of the survey instrument asked the respondent to identify in some detail (using a check list plus open-ended item) the specific outcomes studies conducted during the intensive 6-24 month period of institutional self-study in question.

Figure 5

RELATIONSHIP BETWEEN PERCEIVED PRIMARY MOTIVATION AND SATISFACTION WITH OVERALL SELF-STUDY... AND AREAS CHOSEN FOR STUDY

	Motivation		Satisfaction	
Areas Chosen For Study	External	Internal	Improvement	Useful
Financial Matters	N.R.	N.R.	(+)	N.R.
Governance	(+)	N.R.	N.R.	N.R.
IR Capacity	(-)	(+)	(+)	(-)
Goal Achievement (Outcomes Studies)	(-)	(+)	(+)	N.R.
Curric. or Program	N.R.	(+)	N.R.	N.R.
Student Services	(-)	(++)	(++)	N.R.
Enrollment/Admiss.	(-)	(+)	(+)	(+)
Remedial/Devel. Ed.	(+)	N.R.	(+)	(+)
Organization	(-)	N.R.	(+)	(+)
Fund Raising	N.R.	N.R.	N.R.	N.R.
Faculty Development	N.R.	(+)	N.R.	(+)
Library/Lrng. Res.	N.R.	(+)	(+)	(+)
Long Range Planning	(-)	(+)	N.R.	N.R.

Key: N.R. = Expected proportions (no relationship) found.
(+) = Slight positive relationship found; (++) stronger positive, etc.
(-) = Slight negative relationship found.

The first interesting finding (see Figure 6) is that 88% of the institutions reported doing at least one type of outcome study. This reflects high interest and perhaps relatively low ongoing IR capacity in this area. Of interest also is the general profile of studies. Notice that the most popular types of outcome studies were the alumni followup, attrition/retention study (implicitly called for in most collegiate goal statements) and, surprisingly, studies in which students were asked to respond concerning programs and services. The latter is a welcome trend, and one which these authors have sensed emerging gradually in the last ten years. What is both somewhat understandable and somewhat discouraging is the low level of study regarding the all important (and goal emphasized) student development areas - in both the cognitive and affective domains. Perhaps understandable, although in the long run inexcusable, is the low level of study concerning higher order cognitive

Figure 6

PERCENTAGE OF INSTITUTIONS CONDUCTING SPECIFIC GOAL ACHIEVEMENT (OUTCOMES) STUDIES AS RELATED TO INSTITUTIONAL SIZE

(n=208) Type of Study	Size of Student Body (1) 0-1000	 (2) 1001-5000	 (3) 5001-15000	 (4) 15000	 All Inst'ns.	 Significance*
Institution Did Any Goal Achievement (Outcomes) Studies	92%	91%	82%	76%	88%	(1)+(2)vs(3)+(4) 0.021*
Alumni Followup Studies	71%	74%	61%	57%	69%	(1)+(2)vs(3)+(4) 0.052*
Attrition/Retention Studies	71%	73%	58%	57%	68%	(1)+(2)vs(3)+(4) 0.038*
Student Development						
Basic Skills	37%	35%	34%	38%	36%	n.s.d.
Higher Order Cognitive Skills	25%	10%	5%	19%	14%	(1)vs(2)+(3)vs(4) 0.014*
Subject Matter (Knowledge)	46%	21%	24%	24%	28%	(1)vs(2)+(3)+(4) 0.001*
Vocational/Career Skills	12%	17%	8%	19%	14%	n.s.d.
Personal Development	37%	24%	24%	29%	27%	n.s.d.
Opinions of Students About Programs or Services	64%	66%	68%	67%	66%	n.s.d.

*Kruskal-Wallis Test (=or<0.05)

skills (evaluation, synthesis, critical thinking) which are costly and difficult, and studies of personal development (similarly difficult). The goal statements of American colleges are ringing in our ears, however, particularly regarding intended impacts in these areas.

Less understandable is the low level of study in the basic skill, disciplinary knowledge, and vocational/career skills areas. These omissions are critical and need no further explanation here. In case you are wondering, our on-site multi-campus experience does not indicate that these low frequencies are evidence that regular IR efforts provide these data. Generally, they do not.

We did examine these data by major institutional characteristics, motivation for study, and satisfaction. There are important differences by institutional size. Generally, a greater proportion of smaller institutions did outcomes studies than did larger ones, and they seemed to do more in some specific areas. In general, there was no difference by disciplinary profile, except for the fact that totally career/professional institutions, once again, did proportionately less outcomes studies. When one sorted by highest degree level (see Figure 7) the doctoral level institutions (some would say understandably - because of purported higher student input quality) showed a lower level of outcomes studies. Also, associate and baccalaureate institutions seemed to be doing disproportionately more than the masters and doctorate level institutions.

We looked at the outcomes studies by year, seeking any patterns of interest over time. Only the attrition/retention studies showed any trend (upward), and that started in 1975.

Finally (see Figure 8) internally motivated self-studies seemed to employ more outcomes studies, and some of the specific types, most prominently basic skill studies, disciplinary knowledge studies, and opinions from students, seemed to relate positively to perceived satisfaction with the overall self-study. These are encouraging findings.

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Figure 7

PERCENTAGE OF INSTITUTIONS CONDUCTING SPECIFIC GOAL ACHIEVEMENT (OUTCOMES) STUDIES AS RELATED TO DEGREE LEVEL OF INSTITUTION

(n=208) Type of Study	Highest Degree Offered (1) Assoc.	(2) Bacc.	(3) Masters	(4) Doct.	All Inst'ns.	Significance*
Institution Did Any Goal Achievement (Outcome) Studies	96%	94%	83%	71%	88%	(1)+(2)vs(3)+(4 0.000*
Alumni Followup Studies	86%	77%	63%	37%	69%	(1)+(2)vs(3)+(4 0.001*
Attrition/Retention Studies	78%	77%	60%	50%	68%	(1)+(2)vs(3)+(4 0.001*
Student Development						
Basic Skills	56%	38%	20%	24%	36%	0.001*
Higher Order Cognitive Skills	9%	19%	15%	8%	14%	n.s.d.
Subject Matter (Knowledge	20%	39%	28%	18%	28%	0.050*
Vocational/Career Skills	20%	16%	13%	5%	14%	n.s.d.
Personal Development	20%	38%	30%	16%	27%	0.049*
Opinions of Students About Programs or Services	78%	73%	55%	50%	66%	0.001*

*Kruskal-Wallis Test (=or < 0.05)

Figure 8

RELATIONSHIP BETWEEN THE CONDUCT OF GOAL ACHIEVEMENT (OUTCOMES) STUDIES AND MOTIVATION OF AND SATISFACTION WITH THE SELF-STUDY PROCESS

(n=208) Type of Study	Perceived Primary Motivation		Satisfaction Measures	
	External	Internal	Perceived Improvement	Perceived Usefulness
Institution Did Any Goal Achievement (Outcome) Studies	=	+	=	=
Alumni Followup Studies	=	+	=	=
Attrition/Retention Studies	-	+	=	+
Student Development				
Basic Skills	-	+	+	++
Higher Order Cognitive Skills	-	=	=	+
Subject Matter (Knowledge)	-	=	++	++
Vocational/ Career Skills	-	=	++	=
Personal Development	=	+	=	++
Opinions of Students About Programs or Services	=	+	++	+

Key: (=) no relationship; (+) disproportionately higher incidence;
(-) disproportionately lower

Summary

We have found evidence that continuous, broadly conceived institutional research is not as highly developed as many people had hoped or assumed. Particularly lacking is the broad scale continuous use of goal achievement (outcomes) studies, particularly in the critical area of student development in both the cognitive and affective areas. There are patterns of relationships with institutional size, sponsorship, disciplinary profile - some understandable and some unexpected. Finally, it seems that internally motivated self-studies are the most encouraging climates for the development and use of some critically important, improvement-oriented and usefully perceived study capacities.

Suggestions For the Future

It would seem that the following areas need much more attention by institutional research programs at American colleges and universities:

1. A strong focus on goal clarification and development as a basis for both goal achievement (outcomes) studies and other aspects of improvement and planning efforts;
2. A broadly conceived, and greatly expanded effort to develop locally useful methods to study goal achievement, and then increased efforts to collect, interpret and use this information for institutional improvement;
3. More efforts to systematically assess perceived institutional dysfunction as a guide to improvement efforts. Faculty, staff and student perceptions systematically, anonymously, and skillfully gathered could lead to the kind of survey-guided organizational development efforts widely used in industrial and other areas.
4. Program effectiveness studies based on a combination of program goal achievement (outcome) studies and problem assessment need more emphasis.

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2. H. R. Kells, "Institutional Accreditation: New Forms of Self-Study," Educational Record, Spring 1972, pp 143-148.

THE AMBIGUITIES IN STATEWIDE PLANNING FOR HIGHER EDUCATION

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In order to accommodate the growing demand for admission to colleges and universities in the fifties and sixties, state legislatures created new governing or coordinating bodies or augmented the responsibilities of existing ones to facilitate the expansion on an efficient and effective basis (Berdahl, 1971; Glenny, 1959). Although the characteristics of these agencies varied considerably, they were typically designed to assure maintenance of some degree of institutional autonomy (Halstead, 1974, pp. 2-17). From the standpoint of planning, this demarkation in responsibility had significant implications since it meant the state-level agencies should confine their activities to issues of strategic interest, namely, those of long-term impact, leaving the tactical or shorter range matters within institutional purview.

Several years ago in a study of seventeen state-level higher education governing and coordinating bodies, Glenny, et al. (1975, p. 104) found that fifteen of these had statutory responsibility for planning. Furthermore, the portion having this assignment, thirteen, on the basis of issuance of a formal document, had claimed to exercise it. From this sample, we may conclude that the preponderance of these agencies are engaging in some type of planning activity. Because considerable reliance is placed upon these bodies for resolution of the difficult adjustments facing the higher education community during the balance of this century, it is appropriate that an appraisal of these activities be made in order to determine whether, in fact, this confidence is justified.

NORMATIVE CHARACTERISTICS OF PLANNING

Planning is a process for which the definitions are multiple. Perhaps the most succinct is one suggested by Ackoff (1970, p. 1), namely, that planning is the design of desired future states and of effective ways of achieving them. The product of the process may be viewed as that set of consistent behaviors adopted by an organization for some future period of time in order to establish its role in the environment (Mintzberg, 1978, p. 941).

Although the issuance of a formal document delineating a plan is not requisite to this objective, it does represent a convenient medium for appraisal of the effectiveness of the planning process. A document for this purpose has three unique characteristics. First, it is focused upon some future span of time (Ackoff, 1970, p. 1; Congressional Research Service, 1976, p. 128). Second, it concerns the change necessary in an organization in order to accommodate the environment (Mintzberg, 1978, p. 941). Third, it requires the specification of the decisions needed to achieve this change (Ackoff, 1970, pp. 2-4, Congressional Research Service, 1976, p. 129; Hussey, 1971, p. 184). Because these three characteristics of planning documents are in direct support of the objective of the planning process, it is suggested that their use is appropriate to determine the effectiveness of the process represented by the formal report.

EFFECTIVENESS OF STATEWIDE PLANNING

In the survey by Glenny, et al. (1975, p. 104), seven different types of activities were identified as being conducted in support of the planning function by the thirteen state-level higher education bodies in question. As shown in Table 1, the incidence of these support activities among the agencies was quite variable.

Table 1

Planning-Support Activities of Statewide Education Agencies

Activity	Proportion of Agencies
Role and Scope Statements	Over 70%
Enrollment Projections	
Financial Projections	
Program and/or Campus Additions	40% to 60%
Personnel Projections	
Program and/or Campus Terminations	Less than 20%
Enrollment Ceilings	

The typical products of certain of these planning-support activities may be related to one or more of the three characteristics of planning documents which are suggested as indicators of the relative effectiveness of a planning process. As a consequence, the master plans of nine different agencies, six of which shared commonality with the sample used by Glenny, et al. (1975), were examined for evidence of these planning-support activities. The evidence was then employed to make judgments concerning the degree to which each criterion--futurity, change, and decisions--was being met.

Futurity

Although the content of each of the master plans was clearly addressed to matters of futurity, some variability was observed with respect to the time horizons employed. Because these documents are intended to concern strategic issues, the lengths of the time spans were examined to determine whether they were in congruence with this objective. For this purpose, a review was made of the time horizons associated with the products of three planning-support activities, namely, the projections of enrollment, financial requirements, and personnel needs.

The ranges of the time horizons of each of these three types of projections and the modal values of two are displayed in Table 2. Although the time spans associated with the projections of enrollment and financial requirements were clustered around the modal values of ten and five years respectively, there was no consistent pattern with respect to that applicable to personnel requirements.

Table 2

Time Frames of Planning-Support Activities

Activity	Range	Mode
Enrollment Projections	6-16 years	10 years
Financial Projections	4-10 years	5 years
Personnel Projections	1- 5 years	------

Although the differentiation between strategic and tactical plans has greater substance than simply the applicable time horizon, normative standards clearly relegate plans of less than five years as tactical in nature and those of greater than ten years as strategic (Congressional Research Service, 1976, p. 133; Hussey, 1974, p. 41). On this basis only one of the typical time frames, namely, that applicable to enrollment projections, qualifies as strategic. Thus, it would appear that statewide planning efforts are only partially focusing attention on strategic issues.

Change

Within a formal planning document evidence of change is most commonly encountered in expressions of environmental prospects and in organizational response to those prospects. For these two areas, the products of two of the planning-support activities provide surrogate measures of change. These are represented enrollment projections and statements of role and scope.

Although the prospective impacts of demographic certainties are well known, the projections of enrollment in state master plans tend to delimit the effect. Several mechanisms are employed for this purpose. First, they may limit the time frame or adopt assumptions of questionable likelihood; second, they may simply employ an aggregate of institutionally-supplied projections; or third, they may avoid the subject entirely.

One would expect that role and scope statements would reflect the basic directions of the needed response to change. By their specification state-level agencies could redirect institutional emphasis. In practice, however, these statements seem to represent simplistic extensions of the current status. Indeed, not only do they fail to take into account likely future prospects, but they even ignore recent empirical evidence.

Change is an aspect of planning which state-level bodies seem to evade in the development of formalized plans. The sum of the situation seems to be rather succinctly represented by Glenny's (1975, p. 53) statement that the morning newspaper provides more information than last year's master plan.

Decisions

Because state-level plans reflect little evidence of change, it would logically follow that few decisions would be necessary. Thus, the appraisal of decision-making capacity can only be approached through evidence of the willingness to make decisions rather than their content.

The comparative incidence of two agency planning-support activities provide a surrogate measure of this capacity. These are the approval of program and/or campus additions and the determination of program and/or campus terminations. As will be noted in Table 1, roughly one-half the agencies are concerned with approval of additions but less than 20% are involved in terminations.

The decision-making capacity of statewide bodies appears to be directed toward situations which offer no prospective conflict. Additions to institutional programs and/or campuses are not likely to involve confrontation. Terminations, on the other hand, are likely to do so. A well known example of the latter involved the impasse between the State University of

New York and the Regents concerning the ordered termination of selected doctoral programs (Fields, 1977, p. 8). In the aggregate, the decision-making problems of statewide agencies seem to represent a typical case of what Janis and Mann (1977, p. 50) characterize in their model of decision making as defensive avoidance. This the authors describe as the condition in which a decision maker, when faced with the need to choose among unfavorable alternatives, will delay, shift responsibility, or bolster the least objectionable option.

Overall Appraisal

From an overall standpoint, the content of state-level master plans shows few characteristics indicative of a meaningful strategic planning process. The time horizons employed fall only partially within the normative dimensions associated with strategy formulation. There is little evidence of change and there is a clear indication of evasion in regard to decision making.

CONSTRAINTS IMPOSED ON STATEWIDE PLANNING

Because of the circumstances under which statewide educational bodies are required to conduct their planning function, the expectation for meaningful results should not be high. Indeed, it is suggested that the imposition of several important constraints have in effect precluded success. Three of these are briefly summarized as follows:

1. Planning may be conceptualized as the interplay among the following three forces: (1) an ever-changing environment, (2) an organizational system that resists change, and (3) a leadership whose role is to cause a change in the organizational system sufficient to accommodate the environment (Mintzberg, 1978, p. 941). A considerable body of research (Miller and Friesen, 1978, p. 932; Mintzberg, 1978, p. 944; and Murray, 1978, p. 962) has shown that, in the absence of

strong leadership, this change will prove to be inadequate in relation to the new environmental circumstances. Mortimer and McConnell (1978, pp. 224-225), noting that educational constituencies have not always wanted distinguished leadership in statewide agencies, have suggested that the quality of leadership in these organizations leaves much to be desired. As a consequence, it is not surprising that these bodies do not serve as instruments of change.

2. The major components of the management system of an organization are planning, organizing, and controlling (Johnston, Kast, and Rosenweig, 1963, p. 69). Emshoff (1978) has found that implementation of an effective planning process requires an ongoing commitment measured in terms of years (p. 1107) for restructuring of organizational relationship and managerial processes (p. 1096). The propriety of this prescription has been verified many times over by successful experience (Congressional Research Service, 1976, pp. 125-381). With statewide educational planning typically conducted as an intermittent activity with primary intent upon preparation of a document rather than a part of an integrated management system, the lack of impact is axiomatic.
3. Aharoni, et al. (1978, p. 950) have found that perceptions of autonomy are augmented in the absence of environmental pressures demanding response. Thus, given the characteristics of the fifties and sixties, it is not surprising that institutions of higher education, as Weathersby (1975, p. 17) has noted, have behaved as closed systems in which organizational responsiveness was optional. Although this

behavior is consistent with the preservation of institutional autonomy embedded in statewide educational coordination (Halstead, 1974, pp. 2-17), it does not provide assurance of a consistent system of decisions, explicit in comprehensive planning (Ackoff, 1970, pp. 2-3). Thus, the basic concept under which state-level planning is conducted does not assure consistency, much less optimality.

A LOOK AHEAD

There is little doubt that statewide agencies for coordination or governance of higher education performed a useful function in expediting the expansion of physical and human capacity to meet the conditions of escalating demand for educational services in the fifties and sixties. However, the environment is shifting from one of growth to one first of stability and then of contraction. Review of the characteristics of agency planning processes and the constraints, under which they must be conducted, reveals weaknesses likely to inhibit if not preclude their effectiveness in an era with problems quite different from those applicable to the period from which we have recently emerged.

For these bodies to plan effectively for the next few decades, it will be necessary for them to detect environmental change and to be able to make the decisions required for achieving congruence between the institutions under their purview and the aggregate environment. Because many of these decisions will require the exercise of choice among options, few, if any, of which will be universally popular among their institutional constituencies, the tendency toward what Janis and Mann (1977, p. 50) characterize as defensive avoidance is certain to be amplified, even if the constraints, under which these agencies must operate, did not exist. But these constraints will simply exacerbate the condition. Under the tenet of institutional autonomy, institutional acceptance of decisions is questionable, particularly when some of these may be threatening to survival, which as Flippo and Munsinger (1975, p. 44) note is always a higher ranking objective in the formulation of strategy by an organization than service to society.

There seems to be little likelihood that our current model of statewide planning for higher education will be effective in the future. To date the function has attempted to steer a middle course between the polarities of centralization and decentralization. Soon, however, a choice must be made between the two based upon a rational assessment of the relative advantages and disadvantages of each.

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THE ECONOMIC IMPACT OF INDEPENDENT HIGHER EDUCATION IN NEW YORK STATE

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Introduction

The independent sector of higher education in New York is an impressive economic entity. With over 130 institutions and an FTE enrollment of nearly 290,000, these New York State institutions and their students move billions of dollars through the state's economy each year. New York's independents receive state tax-levy support for financial aid programs, direct institutional aid, and research. This state aid has been sharply eroded by inflation and the need to improve the quality and availability of educational service for disadvantaged students.

Before seeking additional state support, it was essential that cIcu bring to the public a better understanding of the economic benefit of an independent sector. Also, cIcu wanted to demonstrate the balance between the economic benefits and increased tax support of the higher education system. To accomplish this, the cIcu conducted a macro-analysis of the estimated economic impact of spending by 130 New York independent colleges and universities, their employees and students. A comparison was made of the sector's state tax-support and its estimated economic impact.

Terminology

The term "economic impact" refers to the net effect of institutional and personal expenditures for goods and services in an economy. As dollars are received by economic units and individuals and are spent for other goods and services, this creates expansion of income based upon the multiplier effect. The "multiplier effect" is simply the number of times that a dollar is spent in an economy in a year.

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[1] Published report edited by and collaborated with Henry D. Paley, cIcu.
This article reviews the procedures and findings of the published report. For a copy of "THE ECONOMIC IMPACT OF INDEPENDENT HIGHER EDUCATION IN NEW YORK STATE, send a written request to cIcu, 37 Elk Street, Albany, New York 12224.

Overview of the Study and its Limitations

There are many examples of studies which measure the economic impact of a single institution on its community. Basically, the technique requires surveying the spending and saving patterns of the institution, its faculty, and students. These studies have been expanded to account for a variety of factors such as tax consideration of exempt properties, expenditures for capital projects, varying limits of regional impact (i.e.: town vs. state), estimates of social and cultural impact, and others.

Accurately quantifying the economic impact of each member institution using this kind of micro-approach was not feasible in terms of cIcu staff time and cost or cIcu's need to meet legislative timetables. Instead, cIcu developed a macro-approach to calculating an estimate of the economic impact as will be described.

In this type of study, researchers are frequently tempted to inflate economic impact for publicity or other well-intended purposes. The cIcu sought to err toward the conservative so as to be as accurate as possible in documenting the estimated dollar value of spending generated by the institutions and their students. Components of spending were reviewed and included only if the financial impact was reasonably quantifiable. As a result, there is no factor for the socio-economic aspects of education; sic, quality of education. There is no factor for the added-on value of the income potential of alumni. Only spending for current fund and mandatory transfers were included as there was no reliable information on annual expenditures for physical plant expansion or

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other special fund purposes. Also, the economic multiplier selected for this study is a figure adopted from a review of previous institutional studies including Caffrey and Issac's Estimating the Impact of a College or University on the Local Economy (ACE, 1971) and a review of multipliers used in previous studies as reported by Salley in Georgia State University Spending Patterns and the Atlanta Economy (GSU 1977). In spite of the seemingly numerous limitations, it is significant that the results produce an estimate of the economic impact that is at least as large as documented and clearly, it is much larger.

Methodology

(1) Total current fund expenditures and mandatory transfers in 1976-77 were added for all institutions to estimate total institutional spending. Since it was our intention to compare state tax-levy effort relative to the economic benefits of independent higher education, all state funded institutional aid and student aid was subtracted out. The adjusted figure includes payroll, thus spending by employees is broadly taken into account. Column 1 in the figure below represents this step of the study.

FIGURE I: The Methodology

(1)	plus	(2)	less	(3)	x	(4)	equals	(5)
Institutional Spending less State tax-levy Support		Student Spending		Mutual Components: Tuition and Fees; Room & Board Charges		Times Economic Multi. of 2		Estimated Economic Impact of Spending By Students And Institutions

(2) An estimate of total student spending included expenditures for tuition and fees, room and board, and personal expenses. Average per student expenditures for full-time equivalent students were developed for resident, foreign and other non-resident students at both graduate and under-graduate

levels. Based on sectorwide survey data supplied by institutional officers, differentials were calculated for married and single students and for on-campus residential, off-campus residential, and commuting students.[*]

(3) Combining institutional and student spending results in double accounting for certain expenditures between institutions and their students. Tuition and fees for all students and room and board charges paid by on-campus residential students were calculated and subtracted from total institutional and student spending. Room and board charges were reported by the institutions; tuition and fees data was taken from HEGIS reports.

(4) After comparing various institutional economic studies, a generally acceptable average multiplier of 2 was used. Clearly, the multiplier effect varies from campus depending on the location and the institution's relative share of the employment and business in the community. The figure is at least conservative.

(5) The final figure results in the estimated economic impact of spending of institutions and students in 1976-7. To estimate the impact of 1977-8, the figure was adjusted upward by an inflationary factor of 6%.

The report was developed over a two-year period between 1976 and 1978. Preliminary reports received the critical review and technical assistance of the _cIcu_ Committee on Planning and Research, chaired by President Thomas Manion of the College of St. Rose. Surveys were designed in Summer 1977 to collect data on residential patterns of students and payroll and employment statistics. The requests for information were mailed to _cIcu_ member institutions as part of a larger annual survey in Fall 1977. Financial information and resident and migration data was taken from HEGIS data compiled by the New York State

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[*] The detailed calculation appears in the appendices of the report. This part of the study resulted in significant new information about the commuter and residential patterns of independent students, and the economic impact of foreign and other non-resident students.

Education Department. The final report was written and approved by the Planning and Research Committee in Spring 1978.

Findings and Conclusions

The economic impact of institutional spending by independent colleges and universities in New York exceeded any state tax-levy support to these institutions by conservatively $4.2 billion in 1977-8. The total payroll exceeded $1 billion annually for over 80,000 employees in the same academic year.

Student spending for tuition and fees, room and board, and other personal expenses generated an economic impact of $3.8 billion. Non-resident students alone account for over 26% of the total spending by students.

The combined economic impact of spending by independent institutions and students is conservatively estimated to be over $8 billion in 1977-8. Clearly this figure underestimated the total impact because it excludes capital expenditures and any consideration for the socio-economic or cultural contributions of independent higher education in New York State.

In addition to the impact of spending, the study concludes the spending by non-resident students attracted to New York's independent sector exceeds estimated benefits lost by New York residents going to out-of-state colleges. The net export value of the independent sector was estimated to be $174 million in 1976-7. Moreover, the economic return on tax-levy investment for non-resident students in New York State in 1976-7 was an estimated $40 million at the State University of New York and nearly $900 million in the independent sector.

In conclusion, future higher education fiscal policy should recognize the economic benefits derived from a healthy independent sector which enrolls a significant proportion of New York's student population. To permit the deterioration of this sector would not only diminish the quality of New York higher education, it would do serious damage to our State's economy.

LONG-RANGE PLANNING:

"Institutional Renewal Through Organization-Development"

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Academic growth in the United States has been a part of the heritage of the American higher education tradition since the founding of Harvard in 1636. Although considerable historical justification supports this hypothesis, it does not guarantee that growth will prevail in the changing environment of academic planning for the 1970's, 1980's and beyond. For all to long American higher education has considered growth as its most important goal and has evaluated all of its institutions by that measure. It might be helpful to borrow Garett Hardin's illustration of what happens in an open commons to describe the possible current and probable future problems of American higher education:

> The tragedy of the commons develops in this way. Picture a pasture open to all.. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. Such an arrangement may work reasonably satisfactorily for centuries because tribal wars, poaching, and disease keep the numbers of both man and beast well below the carrying capacity of the land. Finally, however, comes the day of reckoning, that is, the day when the long-desired goal of social stability becomes a reality. At this point, the inherent logic of the commons remorselessly generates tragedy.
>
> As a rational being, each herdsman sseks to maximize his gain. Explicitly or implicitly, more or less consciously, he asks, "What is the utility to me of adding one more animal to my herd?" This utility had one negative and one positive component.
>
> 1) The positive component is a function of the increment of one animal. Since the herdsman receives all the proceeds from the sale of the additional animal, the positive utility is nearly +1.

> 2) The negative component is a function of the additional overgrazing created by one more animal. Since, however, the effects of overgrazing are shared by all the herdsmen, the negative utility for any particular decision-making herdsman is only a fraction of -1.
>
> Adding together the component partial utilities, the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another . . . . But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit--in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.[1]

The tragedy of the commons is directly applicable to the problems of American higher education and can only be avoided by long range planning and competent management. Like the commons, American higher education is faced with an unavoidable and drastic decline in resources as well as students, and must, to insure survival for most, become more adaptable and flexible to overcome these very real internal and external forces.

To meet these challenges, American high education must become more adaptable and flexible in planning its mission in both a tactical and strategic sense so that a general commitment to a specific and/or general change is secure. The allocation of funds and revenues, the assignment of faculty as well as the utilization of space requires the need of a very precise planning process. The absence of planning commits any institution to only sporadic bursts of excellence while requiring total submission to the reaction to external pressures. In the past, American higher education has planned for the very singular and narrow areas such as space utilization, new programs, cost of instruction, and student/teacher ratios. Although

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opposed until quite recently to broad based planning, American higher education has felt the effect of the authoritarian 'one-man' plans, whether positively or negatively, and has now recognized that in its present state can only achieve results through the pursuit of goals and objectives through long-range planning.

The Planning Process:

The planning process begins with a well defined missions statement about the institution. This well defined mission statement must be a catholic understanding of what the institution is philosophically as well as academically, and what it wants to become is expressed in a clear set of goals. The planning process should in effect create an internalization of the mission and goal statements by every conceivable individual within the institution at every level. The planning process coordinates the administration, the Board of Trustees, the faculty as well as the students to function to carry out the purpose and the goals without authoritarian mandates imposed from the top.

Satish B. Parekh states that "there is one statement about institutional planning from which the entire process itself follows:

> A planning program will succeed only if the process of planning itself has the same meaning for the English Department as it has for the Admissions Office; it will succeed only if it carries the same validity for the Presidents's Office as for the Division of Arts and Sciences."[2]

Typically, mission statements are vague and general, but effective statements should be specific enough so that all goals and objectives may flow from them. Specifically, the institutional mission should include reference statements regarding: governance; instruction; research; public service; academic support; student service; and institutional resources. This list may

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be enlarged or made smaller, depending on the particular type of institution and its needs. From this mission statement, all goals and strategic plans may be developed. As such, strategic plans must consist of some of the following:

1. Enrollment Plan
2. Academic Plan
3. Financing Plan
4. Management Information Plan
5. Facilities Plan
6. Organizational/Governance Plan

In the simplest of terms, the planning process accomplishes four basic things:

1. It determines what is to be done and what direction the institution should take for the future.
2. It develops operational plans to carry out this mission.
3. It develops controls to review progress being made during the implementation.
4. It develops a system for analysis, measurement, and evaluation.

At this stage of the long-range master plan, it becomes necessary for the determination of institutional responsibilities. Since job descriptions are often defined with static assumptions rather than according to the changing needs of the institution, Parekh suggests developing the kinds of divisional responsibility statements that would incorporate achievement with the mission statement. Parekh also suggests that participation be based on the function of the division, as well as the impact it has on other divisions within the institution. In this way, the divisions would be able to better coordinate activities and minimize over-lapping and shared responsibilities.

It is obvious that authority is the center of planning and that it is a political process of a very broad spectrum. Long range planning is disturbing to most everyone concerned within the institution because it changes the 'known' environment. To some it may be viewed as a 'benign cycle' that only "spins wheels and goes nowhere;" while others may view it as a Machiavellian ploy by some clique as a "self-fulfilling prophecy" to order those things already determined. As chief executive officer of the institution, the president must be more that the leader of the planning effort. The president must be the leading supporter as well as its major functionary. Also, the president must identify all groups and establish adequate communication. Typically, the groups are the administrators, alumni, faculty, staff, students, and trustees. In essence the president must insure commitment from the top. In support of this Jack E. Freeman suggests twelve planning principles on the basis of the institutional planning experience to date.

1. Effective planning requires strong executive leadership and commitment.
2. Effective planning requires clear definitions of purpose, mission, and goal.
3. Effective planning requires coordination.
4. Effective planning must provide for broad participation.
5. Effective planning requires a substantial financial commitment.
6. Effective planning must link academic and financial concerns.
7. Effective planning requires clearly defined procedures.
8. Effective planning requires written plans.
9. Effective planning requires flexibility.
10. Effective planning must be comprehensive.

11. Effective planning requires complete, accurate, consistent, and timely information.[3]

Although none of the above principles guarantee success, they may help avoid some of the paths already taken by some institutions. Since institutions of higher education are human intensive it is most important to be aware of changing values of work according to the writings of Richard Beckard. The following is a partial list of Beckard's views regarding today's changing values.

1. Man is and should be more independent/autonomous.
2. Man has and should have choices in his work and in his leisure.
3. Security needs should be met. Man should be striving to meet higher order needs for self worth and for realizing his own potential.
4. The power previously vested in bosses is reduced and should be. With choices in work and leisure managers should manage by influence (appropriate behavior), rather than through force or the giving or withholding of financial rewards.[4]

New managerial strategies are needed to deal with these changing values and at the same time implement the long-range goals and objectives to meet the needs of higher education. Organization development is the name of the new managerial strategies that are being attached to total system, planned change efforts for coping with the above mentioned conditions. Organization development is a planned change effort. An OD program involves a systematic diagnosis of the organization, the development of a strategic plan for improvement, and the mobilization of resources to carry out the effort. Organization development involves the total system. An OD effort is related to a total organization change such as a change in the culture or the reward systems or the total managerial strategy. Organization development is managed from the top. This means that they must have both *knowledge* and *commitment* to the goals of the program and must actively support the methods used to achieve the mission. Finally, organization-development is designed to *increase* organization '*effectiveness*' and '*health*'.

Several assumptions about the nature and functioning of organizations become relevant and the following is a partial list.

1. The basic building blocks of an OD strategy in long-range planning are groups. Therefore, the basic units of change are groups, not individuals.
2. The reduction of inappropriate competition and the development of a more collaborative conditions is desirable.
3. Decision-making in a 'healthy' organization is located where the information sources are, rather than in a particular role or level of hierarchy within the organization.
4. 'Healthy' organizations develop generally open communication, mutual trust, and confidence.
5. "People support what they help create." People affected by a change must be allowed active participation and a sense of ownership in the planning and conduct of the change.[5]

The above list is a major part of the target of an OD effort, however there are specific skills and abilities that are more relevant than others for achieving the kind of organization effectiveness and health toward which OD efforts are aimed. The following lists some of these as they pertain to higher education institutions and relates them to specific activities.

1. *Interpersonal competence*: This includes self-awareness, communication skills, ability to manage conflict. Laboratory-training activities and sensitivity training have as part of their purposes this type of learning.
2. *Skills in goal setting*: This includes "management by objectives" for

individual performance-improvement goal setting and group goal setting.

3. Problem-solving knowledge and skills: This is theory oriented and would include items like the Blake and Mouton Managerial Grid (The Managerial Grid, 1964; Corporate Excellence Through Grid Organization Development, 1968).

4. Skills in planning: This is an area which has received too little attention and there are still very few formal programs available. The MACUBO documents and Long-Range Planning by Satis B. Parekh, 1975 are items that are presently available.

5. Understanding the processes of change and changing: This is the training and development of "change agents" to meet this need. The NTL Institute for Applied Behavioral Science started programs in 1967 for development of specialist in organization training and development.

Implications:

In higher education institutions, as in all other complex organizations, long-range planning's major theme and thrust will be for the rest of this century the active and continuing search for organization excellence. It is not necessary to have a crystal ball to see the trends for the next few years in organization improvement efforts. Long-range planning is an absolute necessity for today's institutions of higher education and it is this writer's opinion that organization-development strategies will best serve the mission of human intensive institutions. Through organization--development, long-range plans should be thoroughly institutionalized at every level of the administration, faculty and students. Feedback and "action-evaluation" (as opposed to evaluations that are information oriented) must not be overlooked. The planning document must be a tool based on commitment and not a threat. In conclusion, several basic advantages of long-range planning for institutions of higher educations must be listed as the final products or expectations.

1. Long-range planning provides a commonality of understanding about the mission and goals of the institution and the strategies to implement them.
2. It summarizes the profile for the institution in quantitative terms.
3. It encourages better allocation and utilization of resources.
4. It helps direct energies away from the non-essential to the essential activities.
5. It makes evaluation possible in objective terms simultaneously with implementation.
6. It assists in generating funds by strengthening the institutional case with granting agencies, governmental and corporate.
7. It helps ensure survival and growth of the institution.[6]

FOOTNOTES:

1. Hardin, Garrett. "The Tragedy of the Commons," Science 162, (December 1968) pp. 1243-48.
2. Parekh, Satish B. Long-Range Planning. Change Magazine Press, (1975) p. 8
3. Millet, John D., Ed. Managing Turbulence & Change. New Directions for Higher Education. Vol. V No. 3, Jossey-Bass, Autumn 77, pp. 33-51
4. Bechard, Richard. Organization Development: Strategies & Models. Addison-Wesley Publishing Company, 1969, p. 6.
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A DEGREE PROGRAM ENROLLMENT PROJECTION MODEL AND ITS MANAGEMENT POTENTIAL*

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D.E. Watson
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I. Introduction

Dissatisfaction with the progress and development of comprehensive planning in institutions of higher education, and concern with the limitations of planning technologies, especially with regard to department centered needs for enrollment projections and related student information,[1] have been the principal motivating forces behind this project. In addition, we have been concerned with the fact that the great majority of present planning technologies have been designed without specific recognition of the problems of implementation.[2]

In an effort to address these problems, we have attempted to develop information in a form which will improve an institution's ability to plan effectively the allocation of resources at the level of individual degree programs. At the same time, our project specifications called for the development of an information system which could be employed to engage local academic unit management in the decision making processes of the institution. In other words, we sought an information instrument which would serve as a stimulus for the planning and management potential of instructional departments.

The fundamental conceptual framework emphasizes the structure of economic interdependencies which underlie enrollment outcomes. These structural relationships are diagrammatically represented in Figure 1. It is our belief that the dynamics of the process of enrollment can be captured more completely by a structural rather than a unidimensional system of relationships. Thus the model recognizes and incorporates systemic decision making activities taking

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Figure 1. Structural Considerations: Program Enrollment Projection Model

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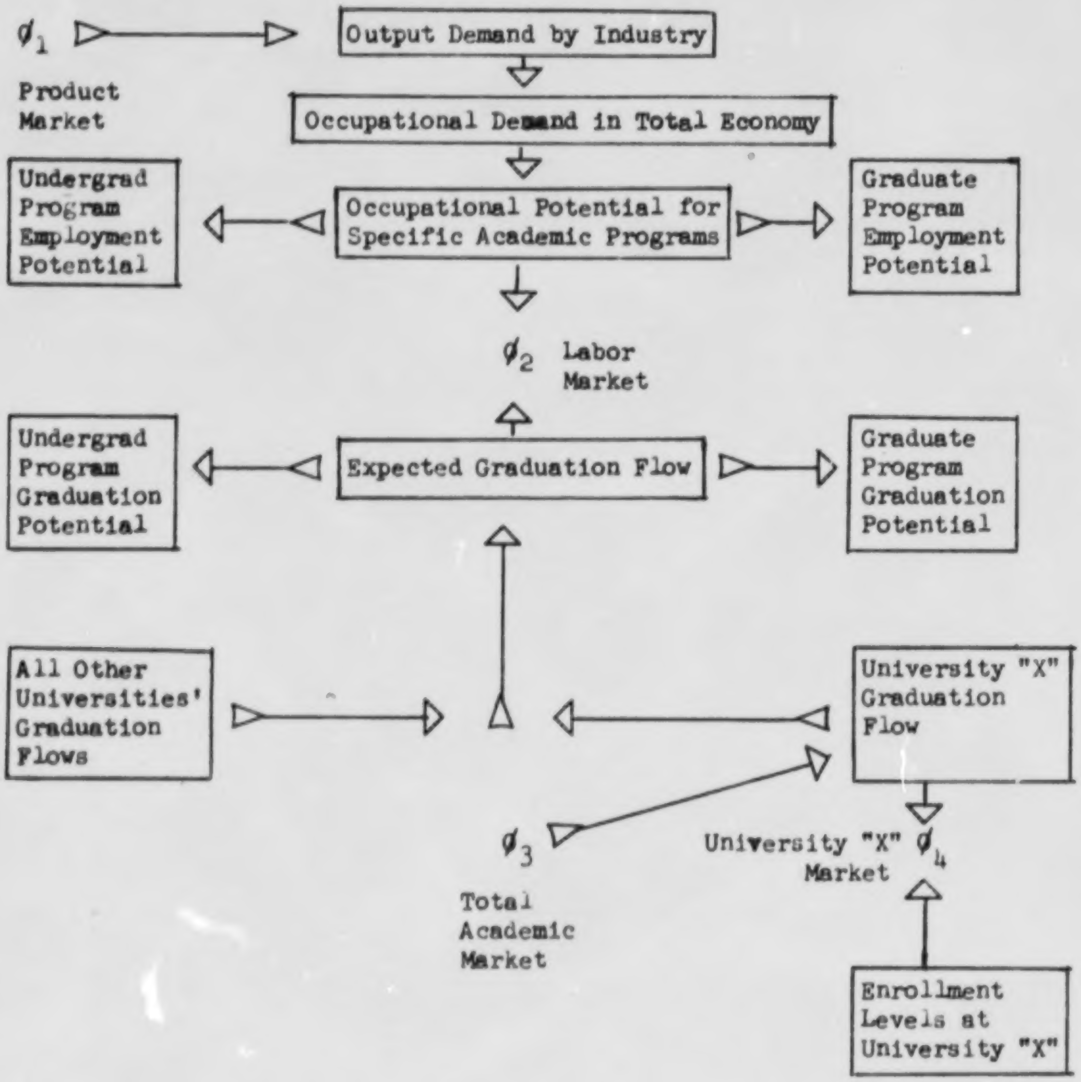
A. Factors

$$\text{Projected Enrollment} = \phi\,\Big(\underset{\substack{\triangle\\ \text{Product}\\ \text{Demand \&}\\ \text{Supply}}}{\phi_1},\quad \underset{\substack{\triangle\\ \text{Labor}\\ \text{Demand \&}\\ \text{Supply}}}{\phi_2},\quad \underset{\substack{\triangle\\ \text{Academic}\\ \text{Factors}}}{\phi_3},\quad \underset{\substack{\triangle\\ \text{Institutional}\\ \text{Factors}}}{\phi_4}\Big)$$

B. Interdependent Relationships


ϕ1
Product Market
Output Demand by Industry
Occupational Demand in Total Economy
Undergrad Program Employment Potential
Occupational Potential for Specific Academic Programs
Graduate Program Employment Potential
ϕ2 Labor Market
Undergrad Program Graduation Potential
Expected Graduation Flow
Graduate Program Graduation Potential
All Other Universities' Graduation Flows
University "X" Graduation Flow
ϕ3
Total Academic Market
University "X" ϕ4 Market
Enrollment Levels at University "X"

place outside as well as inside the institution. It should be understood at the outset, therefore, that the management implications outlined in the latter part of this paper are as much an integral part of the model's system as are the statistical considerations. Moreover, we wish to make clear that although this system is designed to maximize the management roles of disciplinary departments in institutional planning, it is nevertheless compatible with any kind of decision-making environment including those wholly centralized.

II. The Model

A. Econometric Factors

1. Basic Principles

From an economic point of view, student enrollment is a manifestation of the process of human capital formation. The process may take place formally in an educational institution, or in on-the-job training programs.

The conceptual foundations of the process of inert or non-human capital formation in the economy may be applied with minor modifications to describe the formation of human capital in terms of knowledge or skills. At any point in time, the demand for the services of college-trained workers places an upper boundary on the returns to be expected from investment in education.[3] Just as in the case of demand for non-human capital services, employers must make a judgement with respect to the profitability of various production alternatives in the use of human capital. The mix of capital services and other production inputs to be used depends entirely on their relative costs. Whether any particular unit of goods or services is to be produced with skill-intensive, or machine-intensive methods depends on the cost of skilled labor relative to those of machine inputs.[4]

On the other hand, the supply of college-trained graduates places a lower boundary on the returns the educated work force will expect from employment in various occupations. Again, as in the case of the supply of any other factor of production, its supplier -- the worker considering training -- must make an evaluation of the *returns* associated with the acquisition of knowledge, both pecuniary and psychic, relative to the *costs* entailed in this investment. In other words, college-enrollment represents an input in the human capital investment process which, like any other investment, requires time and other resources for development.[5]

To summarize these relationships, we can say that occupational demand factors as well as worker evaluations of the worth of formal training interact in the determination of enrollment -- or output-employment derived demand for formal training. Technically, enrollment is a demand derived from that for goods and services towards the production of which human capital makes some contribution.

There are two areas of decision making in the system the model characterizes: (1) a decision making area over which the university or college can exercise no control, and (2) an area over which it can exert varying degrees of control.

2. Systemic Decisions Not Subject to Institutional Control

We have already observed that profitability as well as technological considerations are closely connected with industry's choice of production inputs. At any level of production, wages of college-trained manpower and the cost of other factors of production relative to their respective productivity determine corresponding levels of employment. Variations in the level of production, therefore, imply variations in the levels of employment. This functional relationship between economic activity and employment permits the projection of levels of employment.[6]

Correlation of academic training and occupations allows us to draw a feasible job potential for specific academic programs within specific regions.

Figure 2 outlines the nature of that part of the projection methodology concerned with the reflection of the impact of economic activity on the employment potential for academic program graduates. Proceeding from left to right, the arrows indicate the causality links employed by the model. First, demand for goods and services determines demand for trained manpower in the various occupations. Second, occupational training presupposes a given amount of formal training which is traditionally associated with specific degree programs. Finally, technological and profitability considerations determine the level of academic or formal training required to meet those occupational demands.

Although occupational demand may be considered a basic determinant of formal training, many additional factors should be taken into account as well. Projected academic program related employment potential will not always approximate the actual number of graduates because many occupations exhibit variations in the level and type of training of their practitioners. Moreover, many major programs may not be closely correlated with specific occupations, but serve as preparation for entry into a diverse set of occupational pursuits. In this connection, it is our expectation that investigation by individual colleges will reveal a unique and relatively stable pattern of relationships between majors and postgraduation occupations in the short run.[7]

Figure 3 indicates the matching of undergraduate and graduate/projected academic-program net accession flows by corresponding graduation flows. The arrows leading to the "empty" or blank circles are intended to indicate that part of the graduation flows which will be diverted away from the labor market, or into occupational pursuits not usually associated with the academic background obtained. From a statistical point of view, the relatively short projection period of five years and frequent updating of model input will tend to increase relative accuracy and stability of the output information.[8]

Figure 2. Economic Activity and Specific Academic Programs

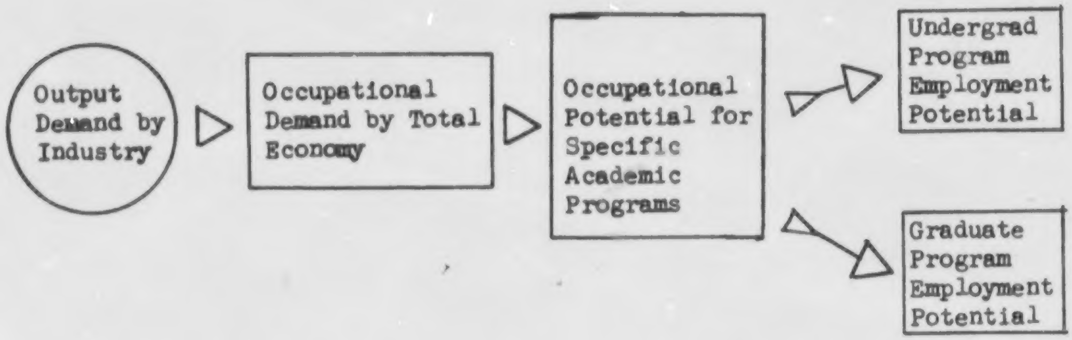
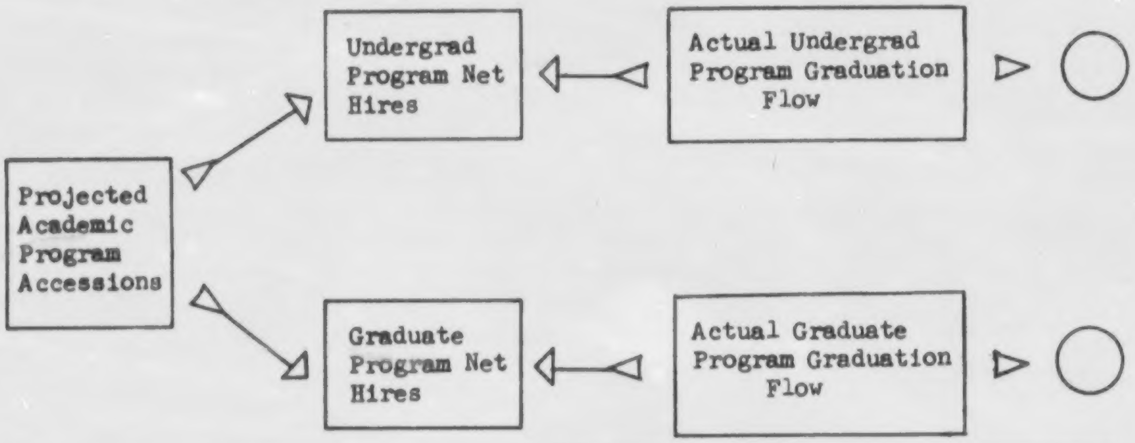

Output Demand by Industry
Occupational Demand by Total Economy
Occupational Potential for Specific Academic Programs
Undergrad Program Employment Potential
Graduate Program Employment Potential

Figure 3. Employment-Graduation Relationships


Undergrad Program Net Hires
Actual Undergrad Program Graduation Flow
Projected Academic Program Accessions
Graduate Program Net Hires
Actual Graduate Program Graduation Flow

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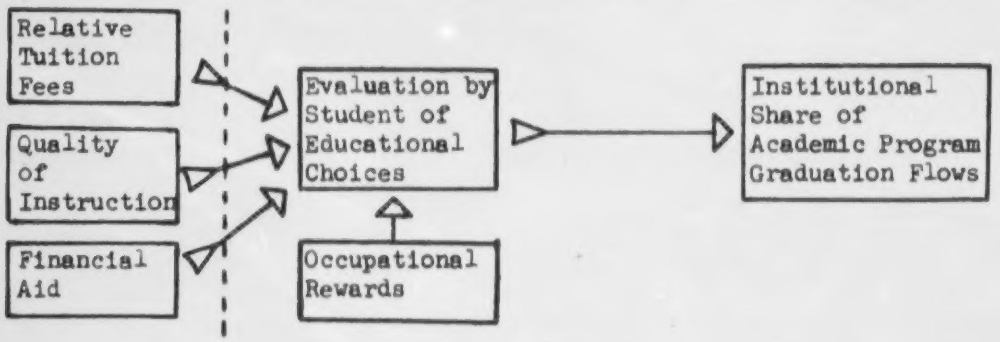
3. Decisions Subject to Institutional Control

The consumer's purchase of "X" as opposed to "Y" goods and services can be largely explained as a process of rational selection. Constrained by the limitations of his budget, the ideal economic consumer is assumed to seek to maximize his satisfactions by employing some combination of objective evaluation and subjective preference in his purchasing decisions. The purchase of education obviously involves the consumer (student) in a series of similar decisions. Relative tuition rates and fees, indicators of the quality and style of instruction, and other institutional characteristics can be expected to influence the students' choice of college, controlling in turn the institutional share of academic program graduation flows.

Institutions may influence considerably the outcome of the process just described. For example, variations in tuition rates and fees, financial aid, faculty hiring practices, class size and instructional methodology, relative to those of other institutions, may have a direct impact on academic program shares. From an economic point of view, students are expected to compare the costs of enrolling in any specific program offered by a number of institutions with the probable benefits that may be derived from this choice. It should be remembered, however, that given the varied occupational potential and academic requirements of the various programs, university-wide changes may have differing degree program impact. For instance, a given change in tuition and fees will not affect all academic departments alike, each program will be associated with a unique set of decision making factors.

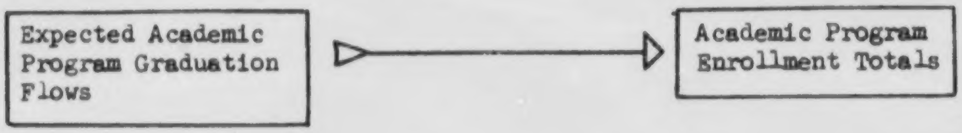
As Figure 4 suggests, the university controls tuition and fees and other pecuniary variables, as well as quality of instruction. Students evaluate these positive and negative offerings in terms of the occupational rewards they hope to obtain.[9] Obviously, these rewards are both monetary and psychic and in either case expected, rather than actual. Uncertainty permeates this decision-making process: students are seldom able to gauge with much precision the strength of their own occupational potential and the totality of the costs involved in their degree program choices. However, the process of higher education lends itself to conditional decision making, especially at the undergraduate level. The relatively large common educational core shared by most academic fields allows for changes of program brought about by changes in conditions.

Figure 4. Academic Program Graduation Shares


Relative Tuition Fees
Quality of Instruction
Financial Aid
Evaluation by Student of Educational Choices
Occupational Rewards
Institutional Share of Academic Program Graduation Flows

Enrollment in any specific degree program at any particular point in time reflects graduation flows expected over a number of years. In the initial years of college, variations in the students' occupational expectations, an institutionally-controlled variable, may exert a large influence over attrition and academic accession rates. However, as student investments in a particular degree program increase with time, it becomes relatively unprofitable either to enroll elsewhere or "drop out."[10] When the training process nears maturity, intra-institutional, rather than inter-institutional movements are likely to be observed. The common institutional practice of limiting the number of transfer credits allowed tends to reinforce these patterns. Thus, in the absence of drastic changes in relative occupational prospects or academic policies, enrollments will bear a stable relationship with respect to expected graduation flows. The basic relationship between expected graduation and enrollment flows is portrayed in Figure 5.

Figure 5. Institutional Enrollment/Graduation Ratios


Expected Academic Program Graduation Flows
Academic Program Enrollment Totals

B. Management Factors

Despite repeated warnings of the relentless encroachment of administrative centralization in institutions of higher education in recent years, there are still many well-placed voices to be heard expressing confidence in the tradition and continuing usefulness of collegiality in institutional decision making. A decade ago, Burton Clark argued that a greater faculty role in governance is possible only if the process is brought down to departments of the campus.[11] Two years earlier, in 1966, the joint statement on college and university governance issued by the American Association of University Professors, the American Council on Education and the Association of Governing Boards called for adequate communication among campus constituencies including governing boards, faculties, administrators and students. The statement urged the provision of a "full opportunity for appropriate joint planning" involving those constituencies.[12]

In drawing attention to the fact that American higher education has made little or no progress in the direction of realization of the principle of shared authority expressed in the joint statement, Mortimer and McConnell reaffirm the view expressed earlier by Selznick that "more useful (than indoctrination and training in the implementation of planning processes) is the collaborative development of plans and policies by as many levels of the organization as possible. . ."[13] Taking this view down an appropriate analytical path, Mortimer and McConnell suggest that a useful definition of shared authority or decentralization of decision making contains these four elements:

(1) Indentification of the proper (relevant) level in the organizational hierarchy for the exercise of control over particular decisions;

(2) Indentification of who should be involved in particular decisions and at what level;

(3) Indentification of the appropriate means or style of control; and

(4) The techniques of control, meaning the systems of information and operational analysis and planning.[14]

This paper takes the position that successful institutional planning is rendered difficult, if not impossible, without the involvement of all units in the university. Employing these elements in the order set forth above, if we (1) assign to academic departments control over a range of matters appropriate to their operations, but in particular to engage in planning and developing degree programs; and if we (2) assign responsibility for guidance to the chairmen (in consultation with central administration) and for decision to the faculty; then it follows that (3) resuscitation of collegiality as a style of control is necessary. The final element (4), technique of control, the choice of information styles, levels and uses is critical to the stability and productivity of the foregoing elements and to the successful use of shared authority. Most techniques of control now available are inhibiting to collegiality and creative planning. Traditional projection methods commonly and necessarily defer the estimation of degree program or departmental enrollment as a last or final step. Characteristically, departmental projections are derived by the simple process of disaggregation according to extrapolated trends in program shares of diachronic campus totals.

Packaged in this fashion, projections lead department chairmen to perceive their enrollment as a function of campus enrollment, and their student market as limited to whatever enrollment the institutions is able to capture. The traditional projection methodology reinforces department management passivity. Stated another way, there are no commonly self-determined departmental enrollment goals to be achieved, only the maintenance of a customary share of the campus enrollment, the goal for which (if there is one) was set by a decision maker remote from departmental interests.

We suggest that information of the style generated by the degree program enrollment enquiring system may modify these conditions by extending perception of the departmental student market into the entire region served by the institution. More specifically, the department, or degree program within the department, is the focus of the projection. Estimates of future regional demand for the department's graduates and graduates of similar departments of competing institutions, measures of the department's share of the flow of graduates under current departmental policies: all serve to emphasize a department-centered universe of information. Furthermore, campus enrollment calculations begin with and are built from departmental enrollment estimations developed by this system.

Although the department has doubtlessly been "task-involved" in institutional operations up to this point, it has seldom been in possession of information which facilitated its "ego-involvement." Psychologists have observed that an individual's desire for personal status is apparently insatiable. Applied to academic man, this is no doubt an understatement. In any event, the soil of academe would seem to be especially receptive to the cultivation of an information technique which supplies ego gratification.

We are contending that the principal of "ego-involvement" in the psychology

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of participation,[15] as originally applied to individuals and groups associated with some type of organizational task, may be employed to stimulate departments of instruction to plan and to manage themselves more aggressively. Cohen and March have suggested that "as long as education is a process particularly sensitive to the character and individual interests of those who teach and those who study, the direct rewards of planning activity can be expected to remain relatively low."[16] Plans and planning activity, they say, tend to become unimplemented symbols, institutional advertisements, and institutional political games. They do so, perhaps, because the institutional "good" seems too big, too distant and too uncertain in terms of the individual interests of those who teach and those who study.

If, however, departments are provided with information which is specific for them and their interests and are invited to use it in a collaborative enterprise with other departments as a basis for formulating proposals for their improvement and for negotiating commitments of future resources, we suggest that an alteration in department behavior is likely to occur. James March and Herbert Simon in their book, Organizations, point to a motivation energy generating system which they observed operating in the following circular chain of causal interactions: ". . . the extent to which goals are perceived as shared and the number of individual needs satisfied in the group jointly determine the frequency of interaction in the group, which influences the strength of indentification with the group, which in turn affects the extent to which goals are perceived as shared and the number of individual needs satisfied in group."[17]

Department faculty have more difficulty in perceiving their self-interest as extending to the institution than to their departments. But they should be able to find relevance in the additional effort involved in cooperative planning when their identity of interest is more clearly understood.

III. Initial Stages in the Experimental Implementation of the Model

Preparatory to the writing of a user's manual facilitating implementation of a model by any interested institution, the model is being refined and tested at Fairleigh Dickinson University. The manual will be published in the summer of 1979.

At this stage in the project, degree program enrollment projections through 1981 have been prepared using a version of the model which is the result of work carried on in recent months. These projections and student related data associated with them -- that is, estimates of future employer demand for program graduates in the student market of the University, and for graduates of similar programs at competing institutions in that market, and measures of the FDU program's share of the flow of graduates in that market -- will be employed in the decision making activity associated with the preparation of the 1979-80 budget for two of the University's eight colleges.

This limited initial cut is not only consistent with the rule of gradualism which should be exercised in any attempt to install departures from traditional practice in management procedures, but permits the project investigators to make a comparative evaluation of budgetary requests and justifications among academic units using and those not using the model output. In these evaluations we'll be looking for shifts in budget request behavior that could be causally related to the new information. At this time, however, we would prefer to reserve comment on the many possibilities inherent in this first test until the results can be fully studied.

As already indicated, the projection system has been designed to function in a highly interactive fashion -- both from a managerial as well as from a computational point of view. Just to give the reader a flavor of the types of applications the model makes possible, a print-out by the current version of the model is reproduced below. Users are requested to answer a series of questions printed on a remote terminal. The answers to these questions -- the projection inputs -- may be provided by an Office of Institutional Research, or by any other similarly qualified group satisfactory to the users, be they department faculty or central administration. It should be emphasized that users may vary their process inputs in order to analyze the sensitivity of the system to alternative growth assumptions.

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RUN                                         EXHIBIT

CAIL          15:02    10/19/78   THURSDAY

PLEASE ANSWER ALL QUESTIONS AS SPECIFIED IN THE USER'S
MANUAL.  IF YOU HAVE ANY QUESTIONS, CALL DR. TOPOROVSKY
AT EXT. 245.  HAPPY PROJECTING!!

ENTER ESTIMATE NUMBER AND MAJOR (NUMBER,NAME)
?1,UNDERGRAD PROG. A
ENTER    1970   ACCESSION RATE AND EMPLOYMENT GROWTH RATE
?564,.0324
ENTER    1970   GRAD/EMPLOYMENT RATIO AND RATE OF CHANGE IN
MULTIPLIERS(GRAD/EMPLOYMENT RATIO AND BACCALAUREATE MULT)
?1.0575,.0849
ENTER GRAD SHARE EQUATIONS INTERCEPT, RELATIVE TUITION
SLOPE(LAG 3), RELATIVE TUITION SLOPE(LAG 4), QUALITY
PROXY SLOPE(TIME)
?1.01747,-.19581,-.22352,-.00889
ENTER ENROLLMENT GRAD RATIO AND RATE OF CHANGE IN
ENROLLMENT GRAD RATIO
?3.1768,0
ENTER THE ACTUAL 1976 DEMAND FOR UNDERGRAD PROG. A
?564
ENTER THE ACTUAL 1976 TOTAL GRADUATION FOR UNDERGRAD PROG. A
?1261
ENTER THE ACTUAL 1976 FDU GRADUATION FOR UNDERGRAD PROG. A
?330
ENTER THE ACTUAL 1976 FDU ENROLLMENT FOR UNDERGRAD PROG. A
?1123
ENTER THE RELATIVE TUITION FOR UNDERGRAD PROG. A FOR ACADEMIC
YEARS 1972 THROUGH 1976
?1.239,1.231,1.159,1.037,1.124
-------------------------------------------------------------
ESTIMATE  1                   UNDERGRAD PROG. A
DEGREE ENROLLMENT PROJECTION MODEL
VERSION 1

                 REGIONAL      TOT.GRAD.
                EMPLOYMENT        IN         FDU SHARE
                  MARKET       REGIONAL         OF           FDU
         YEAR     DEMAND        MARKET       GRADUATES     ENROLL.
ACTUAL 1976        564           1261           330          1123
-----------------------------------------------------------------
PROJ.  1977        582           1094           372          1123
PROJ.  1978        601           1187           440          1343
PROJ.  1979        620           1288           479          1463
PROJ.  1980        640           1397           487          1476
PROJ.  1981        661           1516           530          1608

TIME 0 SECS.
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FOOTNOTES

1. See, for example, W. L. Mangelson et al., *Projecting College and University Enrollments*, CSHE, Ann Arbor, Michigan, 1974.

2. Cf. M. Radnor, A. Bubenstein, and W. Tansik, "Implementation in Operations Research and R & D in Government and Business Organization," *Operations Research*, Nov. - Dec. 1970, pp. 967-991.

3. See Brown, M., ed., *The Theory and Empirical Analysis of Production*. NBER, Studies in Income and Wealth No. 31, N.Y., 1967. Bowles, S., "Towards an Education Production Function," *Education, Income, and Human Capital*, NBER, N.Y., 1970.

4. For relative high degrees of sensitivity see, for instance, Doughety, C., "Estimates of ...," *JPE*, Nov. - Dec. 1972, pp. 1101-19. For relatively low substitution elasticities, see Tinbergen, J., "Substitution of Graduate by Other Labor," *Kyklos*, No. 2, 1974, pp. 217-26. It is important to recognize the crucial role these alternative estimates play in long-run projections of potential manpower needs.

5. Becker, G., *Human Capital*, NBER, General Series No. 80, N.Y., 1964.

6. See BLS, *The Structure of the American Economy 1980 and 1985*, Bulletin 1831, 1975, and, among others, *Occupational Projections and Training Needs*, 1976. State Departments of Labor have extended the applicability of this approach to specific regional clusters.

7. A number of surveys carried out at F.D.U. appear to bear out this assumption.

8. Structural changes may bias the estimates; a situation which can only be improved, not solved, by frequent updating.

9. Freeman, R. B., *The Market for College-Trained Manpower*, Cambridge, Mass., 1971, pp. 65-70.

10. Freeman, R. B., ibid., pp. 202-26.

11. Clark, B. R., "The Alternatives: Paranoia or Decentralization." In G. K. Smith, ed., *Stress and Campus Response: Current Issues in Higher Education*, San Francisco: Jossey-Bass, 1968.

12. American Association of University Professors, "Statement on Government of Colleges and Universities," *AAUP Bulletin*, 1966, 52, (4), pp. 375-379.

13. Cited in Mortimer, K. P. and McConnell, T. R., *Sharing Authority Effectively*, San Francisco: Jossey-Bass, 1978.

14. Mortimer, K. P. and McConnell, T. R., *ibid*.

15. See for example, Allport, G. W., "The Psychology of Participation," *Psychological Review*, 53 (3), 1945, pp. 117-132; Lewin, K. and Grabbe, P., "Conduct Knowledge, and Acceptance of New Values," *Journal of Social Issues*, 1 (3), 1945, pp. 53-64; Lewin, K., *Field Theory in Social Science*, New York, Harper, 1953; and Cartwright, D. and Zander, A., eds., *Group Dynamics: Research and Theory*, Evanston, Ill.: Row, Peterson, 1953.

16. Cohen, M. D. and March, J. G., *Leadership and Ambiguity: The American College President*, New York: McGraw-Hill, 1974.

17. March, J.G., and Simon, H.A., *Organizations*, New York: Wiley, 1958.

COLLEGE PREFERENCE SURVEY:
A RESEARCH COMPONENT IN MARKETING HIGHER EDUCATION

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The College of Saint Rose

As colleges plan for the future with the threat of dwindling enrollments before them, the idea of using marketing techniques becomes more of a reality. At a February 1978 meeting sponsored by NCHEMS, William Dempsey stated, "The major focus in higher education today is on marketing, whether you think of it in terms of financial aid or admissions processes. It really would be useful to segment the market for higher education and find out what realistic potential exists for various institutions in each segment" (p. 3). Ihlanfeldt (1975) states that three basic components in the marketing of higher education are research, strategy, and communication. Using this as a springboard, Hayden, Hill, and Lundblad (1976) go on to say, "Deciding on the type of communications to be used in recruitment is thus dependent on a college's strategy, which is, in turn, based on research" (p. 12).

This was recognized by The College of Saint Rose (CSR), and its Long Range Planning Committee commissioned a subcommittee to investigate, among other things, the image projected by the College. To do this, the Director of Institutional Research was requested to work with this subcommittee composed of 2 faculty members, 2 students, 1 administrator, and the admissions staff. The first step was to articulate a clear statement of purpose for the project. A brainstorming session with the subcommittee resulted in a list of characteristics, both positive and negative, about which we were concerned. It was decided that a survey should be given to random samples of high school seniors, our own students, and high school guidance counselors. It was also suggested by the Long Range Planning Committee itself that CSR faculty and administration be included. Thus, the Director, with the subcommittee acting as critiquers, constructed four very similar surveys, for comparison purposes, to solicit responses from the four populations mentioned above. The students' surveys had three parts: (1) demographic data, (2) data on the ideal college, and (3) comparison of four area colleges. The other two samples had the same sections but responded to (2) as they thought students would respond. Before distribution, the surveys were field tested by a small number of people to determine if questions were sufficiently clear. Slight changes were made in some of the questions for the sake of clarity. Those testing the survey also kept track of the time it took to complete the survey, so that this information could be conveyed to those administering the high school surveys.

The samples were chosen randomly from the four populations in the following manner. A list of all high schools within a 30 mile radius of The College of Saint Rose was compiled and categorized as to: (1) size: small (approximately 125 in senior class), medium (126-249 in senior class), large (250 or more in senior class); (2) public or private; (3) student flow from the school to CSR: + (some students from this school), ++ (heavy student flow from this school), - (no students from this school). A sample was randomly chosen by means of a Table of Random Numbers. The categorizations were used to insure that at least one of each type of school was in the sample. One of the schools on the alternate sample list had to be chosen to obtain a (-) school. Of the six, 2 were small, 2 medium, 2 large; 5 public, 1 private; 3 +, 2 ++, 1 -. A list of high school guidance counselors was also compiled from the 30 mile radius area, but a straight random sample by means of the Table of Random Numbers was selected. For the CSR students, a printout of all undergraduate students was obtained from data processing. Every fourth name was chosen, eliminating any student who was not a matriculated student. Approximately 25% of our undergraduate matriculated student body received a survey. It was decided that all full-time faculty and administrators plus a random sample of part-time faculty would constitute the last sample.

Preliminary work was done with high schools during the summer months. First, phone contact was established in each of the six high schools. Most frequently the contact person was the Guidance Director but in some cases it was the principal of the school. All six of the schools on our first sample list accepted the invitation to be a part of our survey. The Director of Admissions and the Director of Institutional Research then set up personal meetings with each of the contact persons at the high school to further explain the project and what was expected of them. All schools opted to distribute the survey during a required class period--all but one school distributed the survey during a required senior English or Social Studies class; the other used an extended Homeroom period. A schedule of drop-off, administration, and pick-up days was determined for each school. The Director of Institutional Research dropped-off and picked-up the surveys for a more personal contact with the individuals involved. The contact persons had staff meetings with those teachers and/or counselors who were to administer the surveys. All other samples received surveys with cover letters via mail--campus or otherwise. A sample of one of the cover letters can be found in the appendix as well as the high school students' survey.

All seniors in school on the day the survey was given completed a survey. There was one problem at the largest high school in the sample. Immediately before the distribution of the surveys, one of the area universities had much press coverage relating to allegations that experiments were being carried on by the psychology department in area schools without proper authorization. Two teachers in the largest school in our high school sample related our survey to that story and refused to administer the survey. Thus, only 44% of the students in that school completed the survey. Approximately 75% of the seniors in the other schools were present the day the survey was administered and completed one. Finally, we received a total of 846 completed surveys from the high school seniors.

The return rate for the high school guidance counselors was 70% (or 40 counselors), CSR faculty and administration--78% (121), and CSR students--49% (210 students). Responses from CSR students were the hardest to obtain even with two follow-ups.

The results of the completed surveys were numbered and coded by high school, college class, faculty/administrator, guidance counselor. Blanks were coded as a 9 so that they would not be dropped from the total. These were then keypunched and tallied by computer giving frequency and percent. Crosstabulations were also run by various variables to see if there were any differences.

Some of the results of our survey were as follows:

(1) There is more demand for public rather than private education (42% of the potential 4-year college students chose public as compared to 23% choosing private schools; and 50% of those planning to go to any college also chose public education).

(2) Non-church related schools are preferred over church-related institutions (53% of potential 4-year college students chose non-church related versus 5% choosing church-related; this was also 46% of all planning to go to college).

(3) There is a greater demand for 2-year versus 4-year colleges (41% preferred 2-year; 33%--4 year; 15%--no college; 11%--no preference).

(4) High school students prefer medium, i.e., 1,000-3,000 students (41%), coed schools (73%) with minimal or only some regulations (68%).

(5) The following factors were rated as highly important to high school students in choosing a college. (Percentage is total percentage of potential 4-year college students rating the factor "very important" or "important.")

a. variety of course selection (93%)

b. academic excellence (92%)

c. friendliness (87%)

d. cost (84%)

e. financial aid (79%)

f. career programs/counselling (79%)

g. social life (79%)

h. location (70%)

i. visitation (64%)

(6) The following factors were rated as least important to high school students planning on going to a 4-year college. (Percents represent those rating the factor as "very important" or "important.")

a. Religious opportunities (12%)

b. Fraternities/Sororities (16%)

c. Friends' choice of college (17%)

(7) High school students have a low awareness of most characteristics of all colleges in the survey. The average "don't know" rating was in the high 50 percent range.

(8) Lack of awareness of financial aid, flexibility of programs, and career counselling was particularly high. (72-82% of high school students did not know what specific colleges had to offer.)

(9) Guidance counselors are a significant influence on college choice for high school students. 49% of students planning on 4-year colleges rated their influence "very important" or "important."

(10) In choice of major, students sometimes indicated more than one category Each one given was counted. The following is a list of those majors listed by 15 or more students:

103	Business
60	Science
39	Secretarial Science
35	Pre-Med, Pre-Dentistry, Lab Tech, Med Tech
32	Accounting
31	Art, Graphic Art, El. Ed. Art
28	Engineering (other than Electrical)
27	Math
26	Nursing
22	Electrical Eng., Electronics, Electricity
22	Communications (Journalism, TV, Radio)
19	Sociology/Social Work
16	Pre-Law (Law)
16	Psychology
15	Mechanics
42	were undecided

There were many other results which give specific information to CSR--especially as to where we stand in relation to the other area colleges mentioned on the survey. No information about the other schools was used in any other way. From both the positive and negative things that we learned about CSR, many recommendations were made to the Long Range Planning Committee. Four major recommendations made were:

1. Re-evaluate our total public relations program. Develop strategies designed to yield increased awareness of CSR in general, and to strengthen CSR's market position. (There were six concrete actions suggested which might implement this strategy.)
2. Continually explore alternatives for new and/or restructured programs which respond to the interests of high school students. (There were

seven concrete actions suggested to implement this strategy.)

3. Establish a campus atmosphere which incorporates more of the elements which students believe are necessary to college life. (Fourteen concrete actions then followed.)
4. Make distinctive career counselling and job placement services a marketing focus for CSR. (Four concrete actions were suggested here.)

There were nine additional recommendations which did not fit into the above four categories. Therefore, the subcommittee made forty recommendations to the Long Range Planning Committee on the basis of the data from this survey. To date, 23 of these are already being implemented. Two have been approved and are in the hands of the appropriate administrator for specific proposals to be sent to the Long Range Planning Committee. Two others are now being discussed with appropriate faculties; seven are to be looked at in the 5-year planning process; and the remaining six are to be put on a later Long Range Planning Committee agenda since some preliminary meetings have to precede their discussion.

The project stretched across an eight month span of time from initial meeting of the subcommittee and Director of Institutional Research to the analysis of data and submission of recommendations to the Long Range Planning Committee. A problem with computer programming really held the project up for one to two months. It is a long time to spend on one project, but the gains in terms of knowledge of concrete actions that a college can take more than make up for the time invested.

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THE
COLLEGE OF
SAINT ROSE
Albany, New York 12203

Dear

During the past few years, The College of Saint Rose has been in a period of growth. However, according to New York State statistics, there will be a 30% decline in college enrollments over the next 15 years. In order to plan for our future and better serve the needs of students, the Long Range Planning Committee has commissioned a series of studies. The purpose of these studies is to gather data on students' ideals concerning choice of college and data on the position of CSR in relation to these ideals. By rating us and some of our neighboring colleges, you can help us determine in which areas we need to put more emphasis.

This survey is one of a four-pronged approach. We are attempting to receive data from high school seniors, high school counselors, college students, and our own faculty and administration. We feel that it is extremely important to gather information from all of these groups to check our perceptions against those of persons outside the college community. Therefore, we ask you to please fill out the following survey.

Your name was randomly selected from a list of Saint Rose faculty and administrators. All questionnaires are anonymous and no mechanism is being employed to jeopardize that anonymity.

Please return your completed survey to me in the envelope provided by Wednesday, October 5, 1977. Thank you for taking the time from your busy schedule to respond to this survey. It is much appreciated.

Sincerely,

Sister Ann Carmel Luciano

Sister Ann Carmel Luciano
Director of Institutional Research

SACL:mce

COLLEGE PREFERENCE SURVEY
FOR HIGH SCHOOL SENIORS

In each of the following, please circle the appropriate code number for your response or fill in the blank.

1. Sex:
   1. Male
   2. Female

2. Approximate academic rank in class:
   1. Top tenth (0% - 10%)
   2. Second tenth (11% - 20%)
   3. Second fifth (21% - 40%)
   4. Middle fifth (41% - 60%
   5. Fourth fifth (61% - 80%)
   6. Lowest fifth (81% - 100%)

3. BEST ESTIMATE of the total income last year of your parents:
   1. $ 0 - $ 5,999
   2. $ 6,000 - $ 9,999
   3. $10,000 - $14,999
   4. $15,000 - $19,999
   5. $ 20,000 - $24,999
   6. $ 25,000 - $29,999
   7. $ 30,000 - $34,999
   8. $ 35,000 - or more

4. Highest level of formal education obtained by your parents: (Please circle one code number in each column.)

	MOTHER	FATHER
1. Grammar school or less	1	1
2. Some high school	2	2
3. High school graduate	3	3
4. Some college, but less than 4 yrs.	4	4
5. College graduate	5	5
6. Some graduate school	6	6
7. Graduate degree (Masters or Ph.D.)	7	7

5. If one or both of your parents attended college, indicate what type of undergraduate institution each attended. If more than one college was attended, please indicate the type of institution attended for the longest period of time. (Please circle one code number in each column.)

	MOTHER	FATHER
1. Junior college or two-year community college	1	1
2. Private Church-related college	2	2
3. Private non-Church-related college	3	3
4. Public college or university	4	4
5. Other	5	5
6. Did not attend college	6	6

6. What is your current religious preference?
   1. Jewish
   2. Protestant (Other Christian)
   3. Roman Catholic
   4. Other religion
   5. None

7. Do you intend to go to college?
   1. Yes
   2. No**
   3. Undecided

**If you answered No to #7, GO TO PAGE 4. Skip pages 2 and 3.

8. What type of college are you most interested in attending?
(Please circle one code number in each lettered category.)

a. 1. Two-year 2. Four-year 3. No Preference	b. 1. Public 2. Private 3. No Preference	c. 1. Church-related 2. Non-Church related 3. No Preference
d. 1. Coed 2. Single Sex 3. No Preference	e. 1. Near home 2. Away from home 3. No Preference	f. 1. Urban 2. Suburban 3. Rural 4. No Preference
g. 1. Minimal regulations for student life. 2. Some regulations for student life. 3. Many regulations for student life. 4. No Preference.	h. 1. Small (less than 1,000 students). 2. Medium (1,000 to 3,000 students). 3. Large (more than 3,000 students. 4. No Preference	

** Before you go on to the next question, did you circle one number in each of the eight boxed categories above?

9. Do you have any concern about financing your college education?

1. None
2. Some
3. Major concern

10. What do you think your major will be in college? (Please fill in the blank.)

____

11. What do you anticipate your ultimate career to be? (Please fill in the blank.)

____

GO ON TO NEXT PAGE

12. How important are the following to you when choosing a college? (Please circle one code number in each letter row.)

		Very Important	Important	Somewhat Important	Somewhat Unimportant	Unimportant
a.	Athletic Programs/Facilities	1	2	3	4	5
b.	Career Programs/Counseling	1	2	3	4	5
c.	Cost	1	2	3	4	5
d.	Excellence of Academic Programs	1	2	3	4	5
e.	Financial Aid	1	2	3	4	5
f.	Fraternities/Sororities	1	2	3	4	5
g.	Friendliness	1	2	3	4	5
h.	Friends' Choice of College	1	2	3	4	5
i.	High School Counselor's advice	1	2	3	4	5
j.	Involvement of Students in College Life (e.g., Student Government)	1	2	3	4	5
k.	Location	1	2	3	4	5
l.	Male/Female Ratio	1	2	3	4	5
m.	Opportunities for Faculty/Student Interaction	1	2	3	4	5
n.	Physical Setting of Campus	1	2	3	4	5
o.	Prestige of the School	1	2	3	4	5
p.	Religious Opportunities at the School	1	2	3	4	5
q.	Size of the School	1	2	3	4	5
r.	Small Classes	1	2	3	4	5
s.	Social Life	1	2	3	4	5
t.	Variety of Course Selections	1	2	3	4	5
u.	Visitation (Ability to have person of other sex in your room)	1	2	3	4	5
v.	Other (Please specify) ________________	1	2	3	4	5

13. Assuming that a college has a good academic program, of the other items listed in Number 12, which TWO most dominate your choice of college? (Please write the letter of the items in Number 12 in the blank spaces.)

1. __________
2. __________

GO ON TO NEXT PAGE

The remaining questions pertain to the following four area schools:

College of Saint Rose (St. Rose)
2
3
4

Please put the code number of your response to the following questions in each column for each school.

14. Rate each of the above four area schools on the following points as:

1. Excellent
2. Very Good
3. Good
4. All right
5. Poor
6. Don't Know

	St. Rose	2	3	4
Example: Accessibility to local bus lines	2	5	2	3
a. Academic excellence				
b. Athletic programs/activities				
c. Career programs/counseling				
d. Financial Aid				
e. Flexibility of programs				
f. Friendliness				
g. Involvement of students in College life				
h. Male/Female ratio				
i. Overall impression				
j. Prestige				
k. Social life				

15. Rate each of the above four schools as to regulations according to the following scale (Indicate by code number for each school).

1. Minimal regulations for student life
2. Some regulations for student life
3. Many regulations for student life
4. Don't Know

GO ON TO NEXT PAGE

St. Rose 2 3 4

16. For each school indicate how aware you are of what it offers according to the following scale (Indicate by code number for each school).

    1. Very aware of what this school offers overall.
    2. Aware of some of the things this school offers.
    3. Know just a little about this school.
    4. Only know that this school exists. ____ ____ ____ ____
    5. Don't know anything about this school.

17. Has your guidance counselor mentioned this school to you? (Indicate by code number for each school).

    1. Yes
    2. No ____ ____ ____ ____

18. If you were to apply to these four schools, how would you rank each school in order of your application?
    (1 = would apply to first; 4 = would apply to fourth) ____ ____ ____ ____

19. Do you intend to apply to any of these schools? If so, please check which one(s). (If you do not intend to go to college or to apply to any of these schools, please leave all items blank.) ____ ____ ____ ____

****

Thank you very much for your time in completing this survey.

A GEOGRAPHIC PERSPECTIVE ON STUDENT MARKET RESEARCH

Louis M. Spiro
The Pennsylvania State University

Introduction

This paper on student recruitment considers the very pressing realities of declining student enrollments and tries to present a new perspective on how recruitment strategies can be made more efficient. Geographical analysis is this new approach as it examines the distributions and relative locations of people and objects over space. This type of analysis will provide visual information indicating where the total student market of all high school graduates, the potential student market of graduates continuing on to college, and the actual student market of graduates interested in Penn State are located. Recruitment strategies can then be developed that concentrate on the appropriate parts of these markets at the most advantageous times.

Importance of the Study

Increased Emphasis on Student Recruitment

The numbers of traditional high school graduates in Pennsylvania, and the United States as a whole, are expected to decline dramatically in the next decade (Newton, 1975). In Pennsylvania, the number of high school graduates peaked in 1975 with a total of 191,300. By 1978 there was a slight decline of just over three percent and the estimated ten year decline is about 23 percent. The national trends are not quite as severe as the number of high school graduates has not yet peaked in 1975 with a total of 3,162,000. By 1978 there was an increase of under one percent, as the number of graduates peaked and started to decline, but the estimated ten year decline is over 17 percent. Since institutions do not readily accept declining enrollments and revenues, there will be a national increase in competition for students and particularly severe competition within Pennsylvania.

College attendance rates translate the total high school market into the potential college student market. Recent trends in Pennsylvania show a relatively stable but slightly decreasing college attendance rate over time (Hummel et al., 1978). In 1975, just under 43 percent of the high school graduates attended college. The estimate for 1978 is slightly over 42 percent, and by 1985 the college attendance rate is expected to be under 42 percent. These rates are somewhat below the national college attendance rate of 49 percent (Higher Education and National Affairs, 1977). Combining the number of high school graduates and the college attendance rates, the number of potential college students in Pennsylvania can be estimated. In 1978, with 185,200 graduates and an attendance rate of 42 percent, there are approximately 78,000 potential college students. In 1985, with 147,300 graduates and an attendance rate of 41 percent the estimated number of potential college students would fall to 60,000. If the college attendance rate should decrease more sharply than expected by 1985, there will be a decrease of 1,500 potential college students for each one percent decrease in the college attendance rate. This decline in the potential student market accentuates the necessity for competition in student recruitment if institutions are to maintain their present enrollments or even to maintain their present share of college student enrollments. One positive factor is that an institution can attempt to influence students at several points in their college decision-making process. Earlier Penn State studies (Gilmour et al., 1977) showed that crucial decisions are made when students: 1. submit Scholastic Aptitude Test (SAT) reports to institutions in the spring of the junior year or the summer after the junior year; 2. apply to colleges during the fall of the senior year; 3. receive acceptance offers during the winter of the senior year; and 4. accept or decline an offer during the spring of the senior year. Differential recruitment strategies can be developed for each of these stages to provide appropriate information and materials, to increase contact and to maintain student interest in the institution.

The Penn State System--One University Geographically Dispersed

A multi-campus structure exists at Penn State, and offers diverse academic and living environments. The main campus at University Park offers four years of all baccalaureate programs and all freshmen are required to live in residence halls. Seventeen Commonwealth Campuses offer associate programs and two years of most baccalaureate programs. Most of these Commonwealth Campus students commute but some campuses have one or two residence halls. After two years students transfer to University Park to complete their baccalaureate programs. Behrend College offers associate programs, two years of most baccalaureate programs and all four years of selected baccalaureate programs. Most students at Behrend commute to campus even though there are some residence halls.

Campus representatives participate in a broad spectrum of recruitment functions. They visit high schools and talk to students and guidance counselors, attend college nights, and participate in college fairs. They provide on-campus interviews and counseling for high school students and their parents. Representatives respond to application requests and estimate the likelihood of a student's acceptance at University Park or at a specific Commonwealth Campus. They also develop local publications to increase the general campus visibility and to accent specialized programs. All of these recruitment activities take place within campus service areas, the designated parts of the state where each campus has its primary responsibility. The boundaries of each service area are based on commuting distance to the campuses, and are 50 miles or less wherever possible. As such, recruitment activities focus on a very distinct market of high school graduates. These activities are made more difficult by the need to emphasize available programs at a particular campus, other campuses with highly specialized programs, and the offerings of the total University.

A Geographic Approach to Student Recruitment

A geographic approach to student recruitment concentrates on the location and distribution of students within a specified area. In the present situation, this approach concentrates on the total, potential and actual student markets to assess their size and relative location throughout Pennsylvania and within each of the Commonwealth Campus service areas. This increased precision requires individual high school data rather than aggregated school district or county information.

For the total student market, the geographic approach provides the number and location of the high school graduates. This information is useful for establishing recruitment priorities for specific high schools and for developing an itinerary of recruiting visits. A generalized description of this market distribution can focus the recruitment emphasis towards areas with large numbers of high school graduates, leaving less promising areas for later visits. The potential college student market, represented by the number or percent of the graduates who continue on to college, can be examined in the same manner. The geographic approach indicates the number and/or proportion, and the location of the potential college students throughout Pennsylvania and the Commonwealth Campus service areas. A generalized description of this distribution can be used to augment the recruitment strategies based only on the total student market distribution.

The actual student market--those students who have had some contact with the University, either through SAT score reports, submission of an application, receipt of an acceptance, or who can consider Penn State as their final choice--can also be examined at the individual high school level. The results are the distributions of the sizes and/or proportions of these various interest levels throughout Pennsylvania and within the Commonwealth Campus service areas. Knowing the timing at which these interactions generally occur, provides very specific recruitment information for each of the campus service areas. These interest levels can be represented in a sequence of generalized distributions to provide a series of estimates of the actual student market.

Data Sources

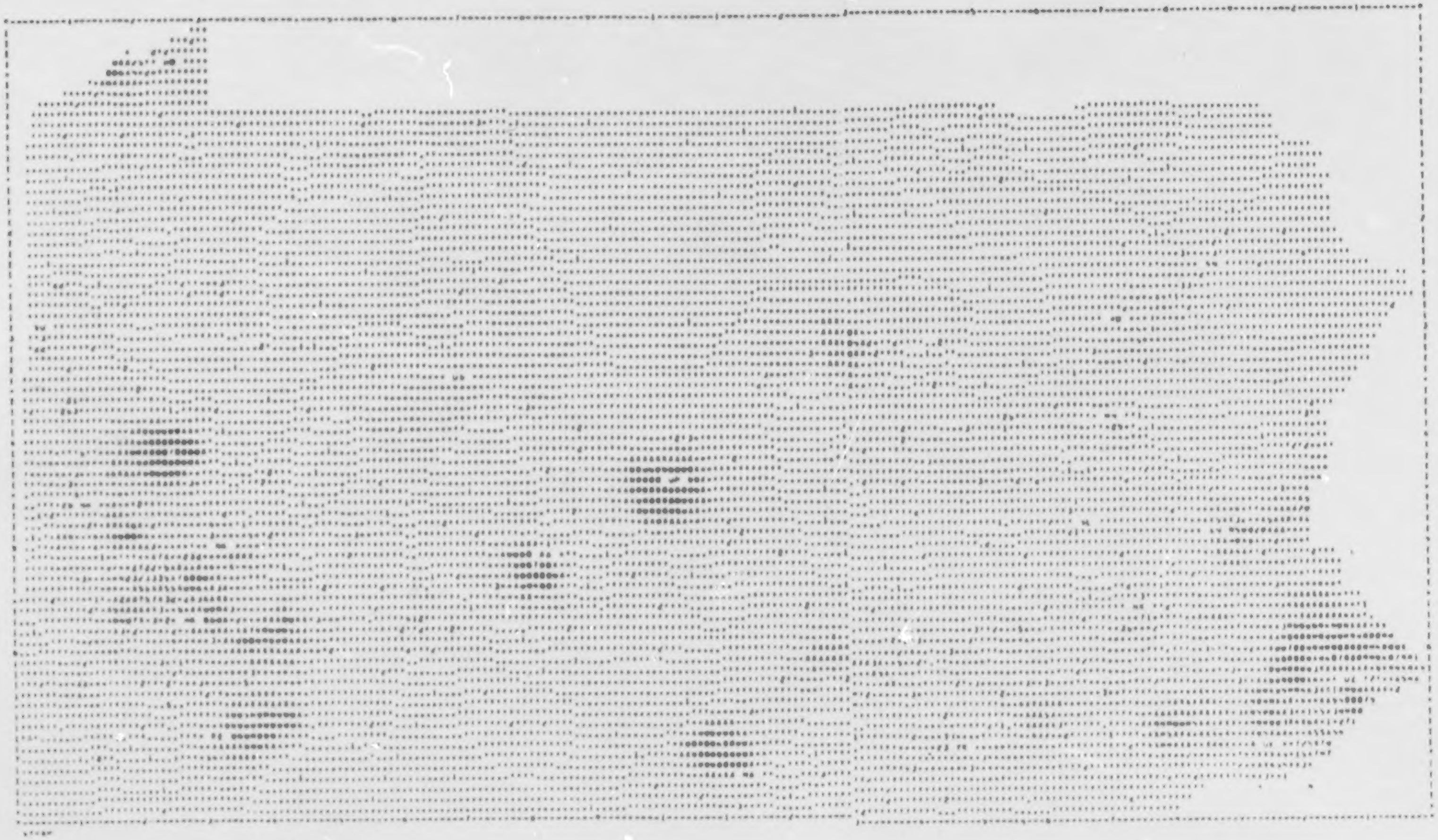
Data on all public schools with secondary enrollments were obtained from the Pennsylvania Department of Education (1978). This data included the number of 1977 high school graduates and the number of graduates who continued on to college in the fall of 1977. Data on SAT reports were obtained from the College Entrance Examination Board (1978). This included the number of students from each high school who reported their scores to Penn State. Finally, data on the levels of student interest in Penn State were obtained from the internal admissions records. This included an admission status code indicating the stage that each student had reached in the admissions process, from rejection to enrollment.

Mapping Techniques

SYMAP

The SYMAP (1976) computer graphics program presents a two-dimensional shaded representation of the data values for one variable (see Figure 1). This map shows that data are located to represent specific high schools within Pennsylvania, and they are identified by the numbers one through seven. These numbers represent the ranges of the number of high school graduates at each school: 1. less than 100; 2. 100 to 200; 3. 200 to 300; 4. 300 to 400; 5. 400 to 500; 6. 500 to 700; and 7. more than 700--so that high schools can be classified into groups. All other points within Pennsylvania are represented by shading, with the lightest shading corresponding to the lowest range of values and the darkest corresponding to the highest range of values. The intensity of shading at each of these points is determined by interpolating the values of nearby data points to estimate the likely group membership. The distances between data point locations and the ranges between

Figure 1. High School Graduates in Pennsylvania - SYMAP



their data values determine the interpolated values, and the extent to which particular data points can dominate the shading intensity of large or small areas. The large dark area surrounding University Park in the center of the map is caused by a large high school in State College with smaller distant high schools in the area. Conversely, this is not the case in the Philadelphia and Pittsburgh areas because there are many high schools of all sizes in close proximity to each other. Another feature of this map is the use of characters to represent the campus locations.

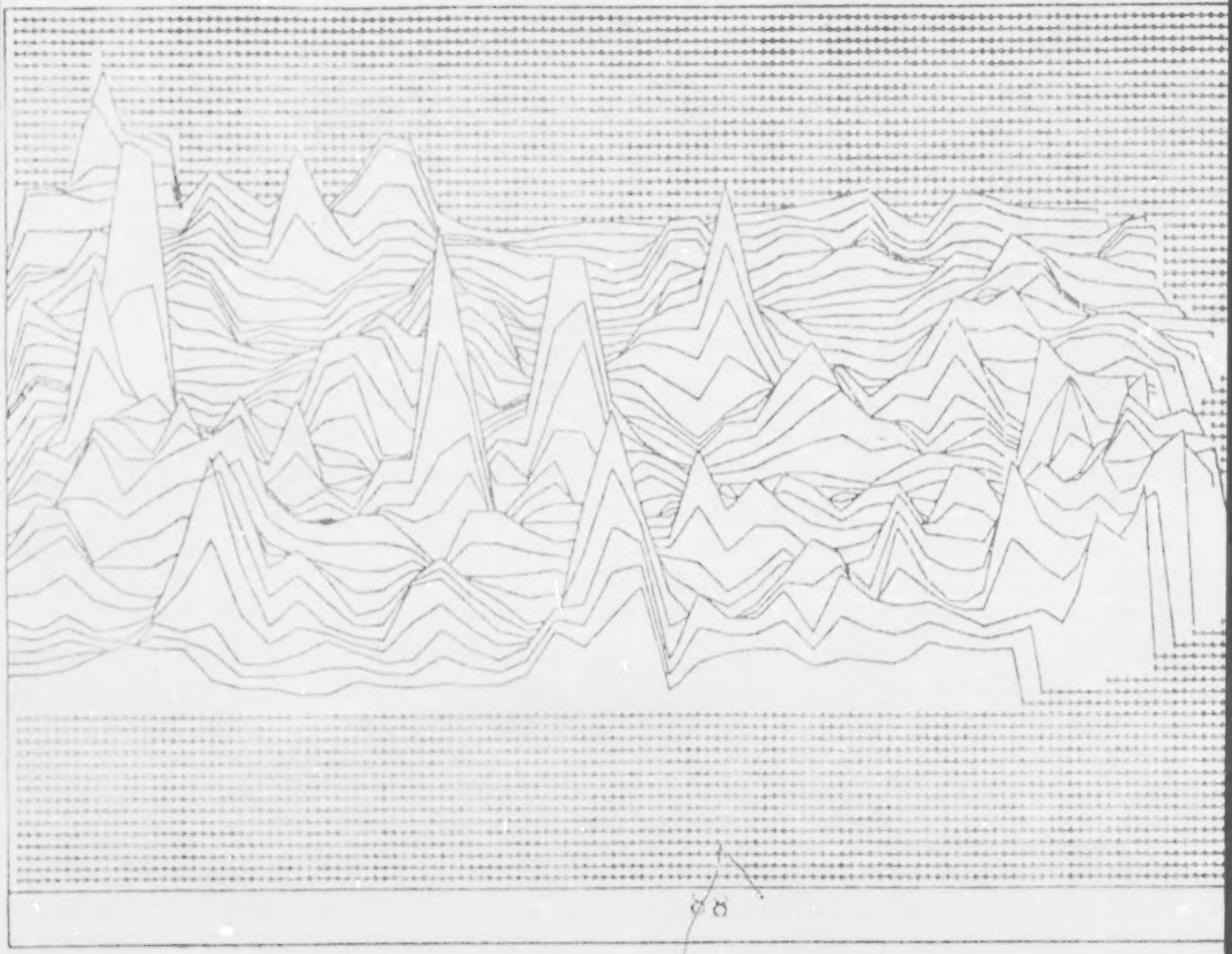
SYMVU

The SYMVU (1971) program creates a three-dimensional representation of the data values from the output of a SYMAP program (see Figure 2). In this map the line heights represent the relative class memberships of the points and interpolated areas, dramatically revealing the numbers of high school graduates throughout the state. In this case, the viewing prospective is with North at the top of the map, however, the orientation is essentially infinite ranging up to 360°. The present angle of elevation from which this map is viewed is 45°, or a "bird's eye view," but it can be varied from ground level to nearly vertical. At a ground level view, much of the detail is obscured because of the inability to see beyond areas of higher elevation. A nearly vertical view removes much of the three dimensional quality of the map, rendering it similar to SYMAP but without the shading to distinguish class memberships.

Results

Statewide and University Park service area SYMAP and SYMVU maps have been prepared for the total number of high school graduates, the proportion of high school graduates attending college and the proportion of accepted Penn State offers from the number of applications. The results from these maps are presented here although no additional figures are included.

Figure 2. High School Graduates in Pennsylvania - SYMVU



High School Graduates

When one examines the number of high school graduates at the state level, the location of high schools and the number of high school graduates at each school correlate well with the urban, suburban and rural areas of the state (see Figure 1). Large numbers of moderate to large high schools are located in Allegheny County in the west and in Philadelphia, Delaware, and Montgomery Counties in the east. Few, widely spaced, smaller high schools are present in the central and northern areas of the state. Moderate and some occasionally large high schools are in the smaller urban areas and in the suburbs. The impact of these differences is even more visible when viewed in three dimensions (see Figure 2).

Considering this total market in terms of campus locations, it is evident that the campuses are primarily rural and suburban. They are not generally accessible from the major urban areas with their large numbers of high school graduates unless the student has a car. Campuses, particularly in the northern part of the state, often have only one or two high schools in the immediate vicinity.

The total student market can also be looked at for specific campus locations; the University Park campus has been chosen as an example of this type of analysis. Within the University Park service area, there are approximately 40 public high schools, most with fewer than 200 graduates. Two major areas, State College and Williamsport, are the largest with 500 to 700 graduates each. Unfortunately, the latter area is quite far for commuting purposes. It appears that a random pattern of small high schools is spread over the rest of the surface area.

The distribution of high school graduates can be used to guide recruitment activities. Areas with larger high schools and the greatest number of graduates would be visited first. Later recruiting visits would be targeted at the medium size schools, while the smallest schools would receive the lowest priority.

Proportion of High School Graduates Attending College

At the state level, the maps of the proportion of high school graduates attending college does not correlate well with the populations of the urban, suburban and rural areas. Generally the rural areas have the lowest college attendance rates, the urban areas have average rates, and the suburban areas have the highest attendance rates. This is encouraging for the Commonwealth Campus network since what they lack in total student market size may be offset somewhat by the location of the potential student market.

For the University Park service area, the maps of the attendance rate pattern closely approximate the number of high school graduates. As expected, the highest proportions are in State College and Williamsport. The combined consideration of college attendance rates and the number of high school graduates permits recruitment efforts to concentrate on the largest schools first, then on those with the highest attendance rates, followed by smaller schools with moderate attendance rates, and finally on those schools with the smallest number of graduates and the lowest attendance rates.

The Proportion of Offers Accepted From the Number of Applications

The proportion of offers accepted from the number of applications received is a measure of yield. At the state level, the maps of this distribution show generally low yields in the urban areas, moderate yields in the suburbs and higher yields in the rural areas. This may be a function of the number of available colleges and the amount of competition they represent for Penn State. Yields are particularly higher near the rural campuses than the suburban ones, especially in the northern part of the state. Even at rural campuses, the yield tends to increase as distance increases from urban areas, and to decrease as one nears the urban areas.

For the University Park service area, the maps show the highest yields are in the southeastern and northern parts of the service area. These yields are not well correlated to the number of high school graduates or to the proportion of students continuing on to college. When this yield information is added to the high school graduate and attendance rate figures for each high school, further refinements are possible in the emphasis and timing of the recruitment process. Top priority would go to the schools with the highest yields, largest proportion of students continuing on to college, and largest number of high school graduates, while the lowest priority would go to the schools with the lowest yields, lowest attendance rates, and the smallest number of high school graduates.

Conclusions

1. High schools can be mapped and visualized in terms of high school graduate size, college attendance rate and interest levels in Penn State.
2. Individual high schools can be classified into several types using total, potential and actual student market information. SYMAP and SYMVU mapping procedures can determine the relative locations of these high school types within the campus service areas. Recruitment strategies can be planned based on the timing and priority established for each type of high school, the size of the various markets in each service area and the relative location of the high schools.
3. Recruitment efforts should be evaluated for each individual high school as well as for each type of high school to determine if the present strategies operate effectively or if others might be considered.
4. Recruitment activities and evaluation are more complicated at other campus service areas because the data include both students offered admission to University Park and those offered admission to their own campus from within the service area. High school

data analysis should probably be done separately for these two groups of students because of the need to develop strategies that will attract students specifically to the local campus as well as to University Park and all other parts of the University.

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CONFRONTING THE PROBLEMS OF MARKET RESEARCH

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Overview

Market research, unheard of as a practice for colleges and universities a few years ago, is being used increasingly to identify and attract new pools of applicants. As institutions have found it necessary to aggressively seek out potential students, market research has gained acceptance. Educators, however, face two particularly substantial dilemmas when trying to apply marketing techniques. The first dilemma is that, while much of the available information on market research deals with heavily populated metropolitan areas, many institutions of higher education are in rural or semi-rural areas with low population density over large geographic areas. The second dilemma is that, while traditional market research is aimed at defined target populations, potential student populations have become increasingly heterogeneous and have not expanded in such overall numbers as would make marketing easier. An additional problem compounding the difficulty of market research in academic institutions results from the lack of sophisticated data bases and retrieval systems, coupled with limited resources for research and study.

These problems call for adaptations of market research strategies for use in today's colleges and universities. This presentation will explore how one institution, Stockton State College, is addressing these problems. A set of working materials, including sample forms and lists, is included in an appendix to show how some of the techniques can be applied and to indicate resources that have been valuable.

The Dilemmas

Most of the techniques for marketing research are oriented toward institutions in or near urban/metropolitan areas. This creates the first dilemma for non-urban institutions: basic data regarding a rural or semi-rural area is hard to obtain and in many ways misleading. The case of Stockton, in the southern New Jersey resort area, is an example. Existing statistical areas around the college (e.g., counties, townships) and related data are not consistent with the probable marketing areas of the college and the population from which potential traditional or nontraditional students can be drawn is neither large nor heavily concentrated. As a result, changes in population trends are difficult to observe or extrapolate. It is also hard to sample, generalize, or project distributions of age, income, or educational background. (This is partly because small non-urban populations often do not reflect the distributions expected in larger populations). Traditional research techniques that could be used in a rural environment can be too costly for a small institution. This requires that alternate techniques and ideas be developed and applied.

The second dilemma, which has already affected many institutions and is likely to spread, is the diversity of potential student clientele. The "traditional" students formerly attracted to full-time day programs and working "non-traditional" students formerly attracted to evening degree programs have begun to intermingle. Students attending an evening class may be full-time 18-year-olds working at part-time jobs, while a 35-year-old housewife or working person may attend a noon-time class. Even informal programs such as continuing education have been attracting more diverse participants. While this diversity results from both creating a market and responding to demand and competition, it calls for significant changes in the usual market research definitions and strategies. The potential student cohort for an institution or program is less easily defined and, under flexible enrollment-stopout policies, even harder to retain. Identifying, recruiting, and retaining these individuals has become a complex process.

We confront these two dilemmas with a three step approach: defining the problem, planning and conducting the research, and drawing conclusions.

Beginning Market Research: Defining the Problem

As with any research project, market research must begin with a clear idea of the problem to be solved. The purpose of market research is to provide a solid foundation for planning effective marketing strategies for your institution. It is therefore a good idea to get together with the planning and admissions offices and develop some specific ideas about what the institution's purposes and goals are. Rather than list what people want to know, make a statement of why information is needed and what use it will be put to. Such a clarification of goals will give clearer direction to your research and make it more specific. As the problem is being defined, four areas should be addressed.

First, institutional goals or purposes that are related to marketing should be identified. Is there an effort, for example, to diversify the types of students? Or is the effort to focus on particular types of student's seeking programs the institution has to offer? Or does the institution aim for a combination approach, targeting on special groups while attracting a broad range of students?

Second, the types of student the institution wants to attract should be clearly described. Does the college want more full-time students, for example? Or does it want more transfer or part-time students, or even enrollment in noncredit activities? Are the students to be of high academic standing or is a liberal admissions policy to be applied? Logically, all market research is aimed toward attracting more students to the institution, but limitations must be recognized in the early stages of new planning to avoid future problems. The nature of the market research will shift based on these determinations.

The third and fourth concerns are more pragmatic. What types of resources - financial, staff, technological - are available for use in market research, and how readily can they be assigned to this project? Finally, what kind of time frame is available for the market research, and how does it relate to application and admission schedules? Recruitment and public relations begin far in advance of any actual enrollment dates, so market research begun in the initial part of the calendar year will have little or no application to efforts for fall term marketing.

Planning and Conducting Market Research

Market research for academic institutions should have two major thrusts: internal, concerning the college itself, and external, about the institution's environment. While internal characteristics are those which will potentially be shaped or refined by the results of market research, external factors must nonetheless be dealt with and either capitalized upon or overcome. Attention must be given to how both internal and external factors currently exist and how they are anticipated to change in the next few years. Projective techniques are often considered skeptically, but it is essential to consider the future in the context of market research.

Internal Characteristics. Many factors contribute to the marketability of an institution. Assess the current situation at your institution by seeking information regarding the following:

1. Who attends your institution? Make a demographic profile of your student body, including data on sex, age, racial/ethnic groups, veterans, and home states and counties. Make an academic profile, too, including data on major fields of study and full-time/part-time and matriculate/non-matriculate breakdowns. Profile the academic achievements of your students by obtaining SAT or ACT scores or other measures of cognitive ability, as well as high school ranks or grades and grades at your institution.

2. Why are they attending your institution? If your institution participates in the Cooperative Institutional Research Program (CIRP) or the Admissions Testing Program (ATP), you should already have available a comprehensive profile of the intentions, attitudes, and opinions of your students. You can also survey your students with an in-house questionnaire. The appendix[1] includes samples of questionnaires that we have developed and found useful.

3. Who persists and why? At Stockton, we are using a "Survey of Student Goals and Satisfaction" (see the appendix) to investigate this. We first administer the questionnaires, then find out later who leaves and stays, comparing the two groups for differences.

4. How and where are students presently recruited? Why are any groups or locations left out? Carefully examine the patterns of recent recruitment activities and relate them to enrollment.

5. What programs are offered by your college? What are its curricular strengths and weaknesses? Confer with deans and academic officers about programs that are used as "magnets."

6. What is the quality of the faculty, staff, and facilities? Use accrediting reports, self-studies, and, where possible, summaries of student evaluations of teachers.

7. What is the college's image? Is it correct? If impressions are that the image is miscommunicated, what has caused it? How can it be changed?

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[1] Copies of the appendix may be obtained by writing to Linda A. Michaels, Office of Institutional Studies, Stockton State College, Pomona, New Jersey 08240.

Further information on the marketability of your institution can be obtained by investigating why some potential students don't attend it. One way to do this is by conducting a survey of individuals who have requested information about the college but have not pursued the matter further. Find out:

1. Academic interests. What subjects would they like to take? What fields would they like to major in?
2. Educational goals. Do they want to take a few courses or finish a degree or certificate?
3. Opinions of your institution. What do they perceive its image to be? Would they consider attending? Why or why not?
4. Time preferences. When would they like to take courses? Are they limited to evenings or Saturdays? Are there courses available at those times?
5. Factual information. What are their ages, occupations, sex, etc.?

Conclude research on your institution's internal characteristics by sketching anticipated changes at the institution that may affect its goals or marketing capabilities. Consider possible changes in its philosophy, budget, or administration. A state or county/community college must also consider possible changes in government policies or practices which may affect it.

External Factors. The area that surrounds the college and the types of people, businesses and life-styles in it will affect the types of enrollment that you can expect. Assess the current situation in your area through some directed research. A variety of information provides the best profile:

1. What are the area's populations, personal and family incomes, occupations and educational levels? Some census and demographic reports you can check are listed in the appendix.
2. How does the college's geographic location restrict or enhance enrollment, especially for commuters?
3. What are the programs, facilities, and students of competing

institutions like? How do these institutions compare in terms of price? The appendix includes a model for the types of information that might be collected. You can also get information on competing institutions from the ATP Round 1 report.

4. What support is available to the college from local business and government? Is the community proud of the college? A survey of local employers could be taken.

After the current situation has been described, sketch anticipated changes in your service area, using the resources listed in the appendix to give you ideas. Begin by outlining the economic prospects of the area. Will there be a growth, decline, or other change in local industry patterns? Then consider the impact of these changes on factors such as area population, incomes, occupations, and educational goals. Finally, consider the impact of these changes on higher education in general and your institution in particular. A shift in occupational demand, for example, could bring about demands for training to qualify for new positions. An increase in disposable income could bring demands for continuing education or other personal development courses.

Drawing Conclusions from your Research

As noted earlier, potential students at your institution can no longer be classified as either "traditional" or "non-traditional" and can no longer be reached through corresponding marketing strategies. Potential students now fall into many overlapping categories. A first step in synthesizing your research might therefore be to try defining a few categories of potential users. Some suggestions:

1. Traditional students
2. People seeking personal development
    a. Housewives
    b. Retirees

    c. Others

3. People seeking training for a new, better career
    a. Housewives
    b. Older people nearing retirement in their present position
    c. Younger people caught in dead-end jobs
4. People seeking to advance themselves in their present field

Once you have developed such a list, review it critically. Your institution will have little realistic hope of attracting some groups of potential students, either because they exist in too small a quantity in your service area, because your competition has already captured them, or because your institution's philosophy and goals do not permit reaching them. There may also be a few groups that you seem to be reaching very effectively right now.

The remaining groups are those that your institution could possibly attract in larger numbers than it is doing now. Your research findings should be the basis of recommendations for changes that would better attract and serve these potential students. Such recommendations could include:

1. More aggressive marketing, including better penetration of the service area and development of a more comprehensive marketing plan than the competition.
2. Public relations efforts to enhance the institution's image.
3. Changes in programs and/or services to better meet the needs of potential students.
4. Modification of the price structure.

Finally, as you make recommendations for marketing procedures and tactics, keep in mind the changes you have forecast, both for your institution and for the area. Is your institution geared to deal with those changes? Your recommendations should reflect anticipated needs as well as current ones.

WHY THEY DIDN'T APPLY

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Introduction

Every year thousands of college bound high school seniors attempt to make inquiries of several colleges, apply to institutions of their choice, gain admission to some and finally decide to attend one. CMU records more than 25,000 inquiries every year and about 4,000 of the inquirers apply. Questions always arise about the non-applicants as to "Why they didn't apply," whether they differed from the applicants significantly in their academic performances, where they attended school and why they chose another school over CMU. In order to get answers to these questions, two studies were conducted by CMU in 1976 and in 1978. The findings and conclusions of these studies follow.

CMU Admissions Profile

CMU admits 60% of its applicants and enrolls 46% of its admittees. The following table compares three years in inquiries, applications, admissions and enrollment.

	Inquiries	Applicants	Admitted	Enrolled
1976	21,647	4,296	2,526	1,250
1977	27,168	4,930	2,646	1,138
1978	26,088	3,802	2,434	1,172

Inquiries have increased by more than 4,000 in 2 years; but the number of applications went down and this was one of the reasons for the second study of non-applications. In 1976, 50% of the admitted students enrolled; in 1977, 43%; and in 1978, 48% enrolled.

Methodology

In both studies, samples were drawn from all University non-applicants and a questionnaire was mailed to everybody in the sample. Questions were designed to explore the reasons that influenced the inquirer's decision not to apply. In the first part of the questionnaire, students were asked to state their college preference and academic field of interest. Other questions explored whether their performance in high school or on the SATs, their sources of information or their perception of CMU could have discouraged them from applying. Also, in 1978 there was interest in finding out if the cost estimated by College Scholarship Service was a major factor of influence. Finally, the inquirer was asked to compare CMU and the school he/she planned to attend on various factors in order to evaluate his/her perceptions of the two schools.

Selected Results

In 1976, the sample was selected by random sampling. Samples were selected from 8 regions across the United States. Sampling for 1978 study was based on the responses from 1976 Non-Applicant Study. Samples comprised about 20% of the inquiries both in 1976 and in 1978. The 15% response rate in 1978 was lower than the 21% achieved in the 1976 study. The lower response rate in the second study may partially be the result of a greater number of inquirers with low interest in CMU who would be unlikely to respond to a survey. 92% of the respondents were planning on entering college during respective school years. The study results were based on 780 responses in 1976 and 791 in 1978.

One of the subjects of interest was in finding where the non-applicants went to college. With respect to this, the following two questions were asked both in 1976 and 1978 studies.

> "Where are you planning to attend college next fall?"
> "List all the schools to which you applied."

Every year CMU conducts "The Competition Study," a study of enrollment of its admitted students, to identify its position among the competitors and also to find out the reasons why CMU or the other school is preferred. The popular schools among CMU's applicants from the results of the Competition Study were also found to be popular among non-applicants. Listed on the next page are the 15 most popular schools in 1978 with their ranks in 1976 compared to the top competitors of CMU.

Many of the non-applicants are applying to and attending high quality schools.

Colleges applied to were looked at by region, and the data showed the following:

Regions	Applied to colleges within region
Pennsylvania	72%
Ohio	58
New York	51
New Jersey	18
North Central	30
New England	65
South	63
West & Midwest	75

Large percentage of students preferred to apply to colleges within their regions, except New Jersey and North Central states. 61% of the non-applicants from New Jersey and 43% from North Central states were applying to colleges in New York, Pennsylvania, and Southern states.

The non-applicants were asked the number of colleges they requested information from.

	1978	1976
1 - 5	24%	21%
6 - 10	29	30
11 - 15	22	22
16 or more	24	26
no response	1	1

For the non-applicants, number of colleges applied to varied from that of

POPULAR SCHOOLS AMONG NON-APPLICANTS AND APPLICANTS

Non-Applicants						Applicants	
Schools Planning to Attend	Rank in '78	Rank in '76	Schools Applied to	Rank in '78	Rank in '76	Schools with Largest No. of Joint Applications *	Schools with Largest No. of Joint Admits *
U. of Virginia	1	3	Cornell	1	2	Cornell	Penn State
MIT	2	3	Princeton	2	7	Penn State	RPI
Northwestern	3	4	MIT	3	6	RPI	U. of Pittsburgh
Penn State	4	1	Northwestern	4	9	MIT	Cornell
Cornell	5	13	Harvard	5	12	U. of Penna.	Syracuse
U. of Penna.	6	6	RPI	6	4	U. of Pittsburgh	Lehigh
Yale	7	-	Yale	7	8	Princton	Case Western
VPI	8	13	U. of Penna.	8	5	Syracuse	U. of Penna.
Georgia Tech	9	8	U. of Virginia	9	3	Lehigh	U. of Rochester
U. of Michigan	10	-	Washington U.	10	11	Case Western	Boston
Indiana U. of Pa.	11	13	Penn State	11	1	Boston U.	MIT
Princeton	12	-	Tufts	12	-	U. of Rochester	Georgia Tech
U. of Pittsburgh	13	2	Duke	13	12	U. of Virginia	SUNY-Buffalo
Washington U.	14	-	Syracuse	14	-	Yale	Washington
U. of Connecticut	15	-	Brown	15	12	Brown	Northwestern
Georgetown U.	16	-					

* Based on 1973-1977 Competition Studies

CMU's applicants. In 1976, non-applicants applied to 3.0 colleges on an average, while in 1978 they applied to 3.4 colleges. In the "Competition Study" the applicants had applied to 4.2 colleges in 1976 and 4.4 colleges in 1977. Non-applicants are being more selective about the number of colleges they are applying to.

Further, it is of interest to compare the profiles of the non-applicants and applicants. Both in 1976 and 1978 studies they were asked to state their high school ranks and SAT scores.

Responses from high school ranks are given below:

	1978		1976
Top 10%	67%	Top 10%	64%
Top 25	20	Top 20	23
Top 33	6	-	-
Top 50	4	Top 50	9
Lower 50	-	Lower 50	1
No response	3	No response	3

The fact that more than 60% of the inquiries were at the top 10% of the graduating class in high school is at least partially the result of CMU using high school rank as a selector for its college board search of potential applicants.

The SAT scores for applicants and non-applicants are compared in the following table:

Verbal SAT Scores

	Non-applicants		Admittees who enrolled elsewhere		Enrolled at CMU	
	1976	1978	1976	1978	1976	1978
200-450	4%	6%	9%	10%	9%	10%
451-550	27	24	32	35	32	35
551-650	42	40	42	38	42	38
651-800	20	21	16	17	16	17
no response	6	5				

Math SAT Scores

	Non-applicants		Admittees who enrolled elsewhere		Enrolled at CMU	
	1976	1978	1976	1978	1976	1978
200-450	3%	4%	4%	3%	4%	3%
451-600	35	28	26	30	26	30
601-700	35	38	41	41	41	41
701-800	20	25	29	26	29	26
no response	6	5				

The SAT scores of non-applicants are similar to that of CMU admittees who enroll elsewhere.

According to the self reported ranks and scores, more than 60% of the non-applicants have excellent high school records and SAT scores.

One of the interests concerning non-applicants is the availability of their chosen field of study as an undergraduate major at CMU. Two questions were asked to check both the actual availability and the perceived availability.

"What academic field do you plan to study?"

"As far as you know, does CMU offer a similar program in the area you will be studying?"

The first question was asked in both 1976 and 1978, the second only in 1978. (In 1976 a true/false question was asked, "CMU does not offer the kind of academic program I am seeking.") Seventeen percent of the non-applicants were interested in one of six popular fields of study not offered as a major at CMU. An interesting finding came from reviewing the results of the second question, above, for only those students who were planning on studying a field available as a CMU major.

Does CMU offer a similar program?	%
Yes	75
No	6
Don't know	18
No response	1

These responses show that almost one-quarter of this group either did not know or did not think that their field was available at CMU.

Another question of interest is how people who requested application materials learned about the University. The following question was asked in both 1976 and 1978.

"How did you learn about CMU?"

Non-applicants were given a list of sources of information to check. Following are the responses to this question.

Sources	1978	1976
College Board Search	50%	51%
Friends	26	37
College Handbook	22	33
Relatives	16	20
Admissions Office "programs"	15	17
High school Counselor	13	21
Media	11	12
High School Teacher	6	10

CMU uses a College Board Search to identify potential applicants.

Also of interest is whether non-applicants had ever visited the CMU campus. The following question was asked in 1978 with the response listed.

"Did you visit the CMU campus before deciding not to apply?"

Yes	10%
No	89%
No response	1%

From this question and the one previously cited about sources of information it can be seen that CMU has contact with a majority of potential applicants through written media rather than personal contact.

As the Admissions Office has worked to increase the number of applicants to the University, there has been some anecdotal feedback especially from high school guidance counselors that CMU is harder to be admitted to. The following question was asked in 1978 with the response shown.

"It is harder to gain admission to CMU now than it was several years ago."

Agree	37%
Disagree	31%
No response	32%

Although over a third of non-applicants felt it is harder to gain admission, only 12% reported that this had some influence on their decision not to apply and 4% said that it had a strong influence on their decision.

In 1978 for the first time, the College Scholarship Service (CSS) sent a Report to Filer for those filing Financial Aid Forms with the CSS. The Report to Filer estimated a family contribution for prospective college students based on some of the information supplied on the Financial Aid Form. Slightly over half of CMU non-applicants had filed a Financial Aid Form. Almost two-thirds of those filing, filed forms in January or February of 1978. Over 40 percent of the non-applicants, or about 80 percent of those filing forms, reported receiving a Report to Filer from the College Scholarship

Service. 10 percent of the non-applicants, or about one-fourth of those receiving the Report to Filer, reported that the estimated family contribution amount on the Report to Filer discouraged them from applying to CMU. This last response was especially useful as it estimated the impact of the Report to Filer on CMU's application decline in 1978.

It should be mentioned that the CMU 1978 Non-applicant Study offered one opportunity which was not used to get information on a policy question. In 1978, applicants were required to complete an essay as part of the application. This was a new requirement. Since the non-applicant study was mailed, a decision was made to drop the essay from the application. In retrospect, it would have been useful to ask non-applicants if the essay had discouraged them from applying.

Summary

Surveys sent to a sample of non-applicants in 1976 and 1978 have provided useful information about important policy questions. In general, the results have shown a competitive position with other major institutions. The results also show that there are a variety of reasons for students not applying to CMU. The main reasons cited by students were distance from home, cost of CMU and a dislike of Pittsburgh. It will therefore require a variety of programs or policy changes to increase the University's ratio of applicants from those who request application materials.

The University is already taking steps to use some of the information provided by the surveys. Interested prospective students can receive an estimate of their "net cost" from CMU before they apply. And an experiment has been set up to compare admissions results in areas where high schools are visited by CMU with similar areas where no visits occur.

PENN STATE'S COMPETITION:
WHAT TYPES OF INSTITUTIONS AND WHY STUDENTS CHOOSE THEM

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Introduction

Objectives. This paper explores differences between prospects who send only SAT scores to Penn State, applicants and students who enroll. The objectives of this market research are a) to identify Penn State's competition and b) to learn which factors students who consider Penn State regard as most important in choosing one institution instead of another.

Population. The total prospect pool for the 1977 admissions year included 52,038 students who sent Scholastic Aptitude Test (SAT) scores or applications to Penn State. The population for this study included those 18,531 students for whom the University's computerized files contained addresses, SAT scores, and Student Descriptive Questionnaires (SDQ).

Research Design

Three subpopulations. An earlier Penn State study (Gilmour 1977) analyzed the American Council of Education freshman survey and found clear distinctions between University Park and Commonwealth Campus students in their desire to live in dormitories or at home. On the basis of that research, prospects were assigned to subpopulations according to the following scheme: (1) applicants to University Park and prospects aspiring to at least a baccalaureate degree and intending to live in dorms, (2) applicants to any Commonwealth Campus and prospects heading for at least a baccalaureate degree and preferring to live at home and (3) prospects and applicants aiming for a terminal associate degree.

Stratification. Another phase of Gilmour's (1977) earlier research supported a theoretical model of how students decide which institution to attend. After students decide to attend college, the Kotler (1976) college choice paradigm suggests that they proceed through stages of fact gathering and application submission before finally deciding among the institutions that accept them. The University receives indicators of these levels of interest in the form of test score reports, applications, acceptances and enrollments. In order to find out whether the University might take any actions that would increase the numbers of students indicating greater interest, equal-sized samples were chosen from successive levels of interest for each of the three subpopulations described above. The first indicator of interest is test score submission and the second is completing an application. Then:

1. Admission could be denied.
2. Admission could be offered to the University, but not at the main campus. The student would either accept or decline referral to another location.
3. The offer of admission could be declined.
4. The offer of admission could be accepted.

Segmentation. Table 1 shows the distribution of the prospect pool and the survey sample into segments based on subpopulations and levels of interest. Segment 6, composed of 32 students who were denied admission to associate degree programs, was excluded from the study because of its small size.

Little is known about institutional selection by nontraditional students. Segment 15-16 was formed of freshmen past age 20 to explore their perspective on choosing a college.

Questionnaire Administration. The questionnaires were mailed to arrive during Christmas break, followed with a postcard a week later, and checked on by phone a month later. Eliminating undeliverable and uncodable responses produced an overall response rate of 56 percent. Table 1 shows response distribution by segment.

Table 1

Questionnaire Segment Samples

Segment	Subpopulation	Sample		Returned	
		%	N	%	N
1 - Sent SAT - dorm	5496	2.5	136	48	65
2 - Sent SAT - at home	1585	8.4	133	44	58
3 - Sent SAT - associate	224	58.9	132	39	52
4 - Applied UP - not accepted	315	45.1	142	37	52
5 - Applied CWC - not accepted	181	82.9	150	40	60
7 - Accepted at UP - declined	3231	4.1	134	57	77
8 - Accepted at CWC - declined	1759	7.7	136	58	79
9 - Accepted Assoc. - declined	76	98.7	75	53	40
10 - Referred CWC - declined	1496	8.9	133	50	67
11 - Referred CWC - accepted	829	15.9	132	67	89
12 - Enrolled at UP	1709	7.4	126	81	102
13 - Enrolled, bacc., CWC	1249	10.8	135	67	90
14 - Enrolled, assoc., CWC	164	81.1	133	77	102
15-16 - Enrolled past age 20	217	99.1	215	61	132
17 - Non-Pennsylvanians	6665*	2.5	168	55	93
TOTAL	18,531	11.2	2080	56	1158

*Because these are distributed throughout the other segments, this number is excluded from the total in this column.

To obtain as much marketing information as possible from the sample, the questionnaires were coded so that files could be merged to provide rather extensive demographic, academic and attitudinal measures for each respondent. Whenever possible, analyses were so conducted that conclusions could be drawn from data generally available to the Admissions Office.

Respondents completed a five section marketing questionnaire. Students first provided objective variables including socioeconomic background and distance to college. Then they ranked the colleges they had considered. Third, they evaluated the effects of people and information on their decision. Fourth, they rated the colleges they had considered on eighteen variables. Finally, they described the institutions and selection process in their own words.

All useable responses are included in reporting the survey, but because some questionnaires were incomplete, differences in totals occur from one table to another. When comparing final college choice with nonquestionnaire variables, the 246 school choices obtained during follow-up telephone calls are also included.

Institutional Choice

Categories. From American University in Paris to the University of Washington, from Ivy Art Institute to Harvard University, everybody competes with Penn State. When each institution considered by a student was coded, the list included more than 450 schools. The method of sample selection leads naturally to a preponderance of responses from students enrolled at Penn State (50.9 percent). Only four universities - Pitt, Temple, Drexel and Indiana University of Pennsylvania - were the institution of choice of as many as one to two percent of the survey respondents.

To organize this chaos, schools were grouped according to control and location. Institutions were classified as outside Pennsylvania, private or public; within Pennsylvania, private, state owned or state related; two year; or miscellaneous. Table 2 shows how many students from each segment chose to enroll in each type of institution.

By segment. Pennsylvania's private institutions attract many of the segment 2 students who want to live at home and the segment 5 students rejected by a Commonwealth Campus. Almost a third of the students who decline Penn State's offer of admission go to private institutions in Pennsylvania. Most of the students in segments 1, 7 and 10 who choose out of state institutions live outside Pennsylvania. Other public institutions in Pennsylvania enroll many of those declining Penn State's offer. Two-fifths of the associate degree prospects not attending Penn State choose to enroll at two-year colleges.

The survey surprised us by revealing that one-quarter of those students whose applications were rejected by Penn State still came here. The number includes both those whose admissions status was changed after we extracted the data and those who entered with provisional status. Provisional admission provides access to all high school graduates by offering regular admission to anyone who completes 18 credits with at least a C average.

By migration. In order to explore the college choice of those students interested in Penn State but living outside Pennsylvania, the location of the college in which they enrolled was compared with their home state. New Jersey, the best external supplier of Penn State prospects, sent 55 of its 79 Penn State prospects out of state. More than half the prospects from New England attended colleges not in their home states. Of the 56 New York prospects, 32 left the state to attend college. Ohio sent just over half and Delaware, Maryland and West Virginia just under half their Penn State prospects to out of state institutions. States not adjacent to Pennsylvania sent a very large proportion of their Penn State prospects to out of state institutions. Although

Table 2

Types of Successful Competitors

For Students Showing Successive Levels of Interest in Penn State

		Percent of Segment Enrolling							
Segment		Non-Pa. Private	Non-Pa. Public	Pa. Private	Pa. Owned	Pa. Related	Two Year	Penn State	Total Number
1	University Park prospects	22	26	18	12	6	8	8	73
2	CWC prospects	1	11	42	10	22	12	3	74
3	Associate prospects	0	8	19	4	2	60	0	52
4	University Park rejects	12	15	16	20	8	15	12	73
5	CWC rejects	5	3	31	7	7	12	36	75
7	Admits at UP-declined	21	23	25	17	7	2	5	84
8	Admits at CWC-declined	12	16	31	13	15	7	6	85
9	Associate admits-declined	6	6	22	22	3	19	16	32
10	Referral rejects	27	43	15	8	4	2	0	86
11	Referral accepts	0	0	0	0	0	2	98	93
12	University Park enrollees	0	0	0	1	0	0	99	118
13	CWC enrollees	0	1	2	1	1	0	94	92
14	Associate enrollees	0	0	1	0	1	0	98	103
15-16	Enrollees past age 20	0	0	1	0	0	0	99	160

Column totals are not provided since any realistic measure of competitive strength must be based on proportional representation of the total prospect pool.

the numbers were small, 46 of the 71 potential applicants from nonadjacent states actually attended institutions outside their home states, suggesting that these students are serious in their quest to attend college far from home and might be good prospects for special recruitment efforts. Of 239 potential applicants from outside Pennsylvania, 21 percent actually attended Penn State. The quality of out of state prospects was high; 95 percent were academically qualified for admission.

Only eight percent of the Pennsylvania prospects for the University left Pennsylvania to attend school. They went to 28 other states, 14 percent to Ohio, 10 percent to New York, and nine percent each to New England and Virginia. Half attended college in states adjacent to Pennsylvania. Three-fifths of the Pennsylvania respondents staying in Pennsylvania attended The Pennsylvania State University.

By academic ability. Penn State uses a formula combining SAT scores and high school grade point average to predict probable academic performance during the freshman year. Grouping computed averages by level produces 10 admissions categories, shown linked with final college choice in Table 3. Few top - category 1 - students appear in Penn State's prospect pool. The small numbers in the lowest categories were mostly veterans or two year prospects. Although the actual cutoff point varies from year to year and program to program, students ranking below category 6 are generally not admitted to Penn State.

Preference versus choice. The University predicts enrollments by projecting yields. Fifty thousand SAT scores yields 25,000 applications yield 18,000 offers of admission yield 12,000 enrollment. The student, however, has a rather different perspective. He has a favorite institution, to which he has probably applied. He has also applied to one or several schools in case his favorite does not accept him. As various institutions admit or reject him and offer

Table 3

Percent Choosing Various Types of Institutions by Academic Ranking Admissions Category

Enrolled at	High	2	3	4	5	6	7	Low	N
Out-of-state Private	7%	33%	21%	20%	10%	9%	0%	8%	101
Out-of-state Public	1	31	18	24	15	7	1	3	149
Pennsylvania Private	3	29	15	22	14	9	2	6	163
Pennsylvania State Owned	0	19	22	20	16	18	4	1	74
Pennsylvania Supported	0	25	19	28	10	10	4	4	57
Two-Year	0	10	12	12	29	16	8	13	83
Penn State	1	20	19	20	18	12	3	8	562
TOTAL NUMBER OF STUDENTS	21	275	219	234	200	132	34	74	1189

varying amounts of financial aid, the student considers all his options and makes a final college choice.

Students may not apply to their favorite school if they are fairly certain they would not be admitted or if they feel certain they could not afford it, but 93 percent of the 1,093 students responding to the questionnaire indicated that they had applied to their first choice school. Offers of admission were received by 876 of these, and 755 of the 1,021 who applied to their first choice school actually enrolled there. To put it another way, almost three-fourths of the students attended the institution they applied to as their first choice. Nevertheless the reader should be cautioned against predicting college choice since students ordered their preferences in retrospect.

Well under 10 percent of the students went to third, fourth and fifth preferred institutions.

By selectivity. Each institution was assigned a selectivity ranking according to Astin's (1978) formula. Differences within each type of institution were observed for the three selectivity groupings. Among private schools, the most selective were the most popular. For out of state privates, selectivity was a predictor of the proportion accepted among those applying. The most highly selective public institutions in other states accepted two-thirds of their applicants; those less selective accepted three-quarters. Among Pennsylvania private institutions, however, the correlation was considerably weaker, with all three selectivity rankings accepting approximately 80 percent of the applicants. Penn State's Admissions Office reports that 77 percent of the total baccalaureate degree applicants for Fall of 1977 were accepted.

Decisive Factors

Over 1,000 students chose from a list of 18 descriptors the four factors they had considered most important while selecting a college. The students were also asked to rate each school in their preference list according to a scale provided for each of the 18 factors. Over 700 students completed all 90 ratings.

The most important factor, listed by one-fifth of the students, was program quality. A very close second was the availability of a special program. Costs held third place among the most important decision factors. Distance from home and size each claimed top ranking by 10 percent of the students. Although secondarily important to many students, whether the University is urban or rural, what its admission standards are, what the prospects are for financial aid or a job after graduation were considered the most important considerations by a small minority of students.

By type of institution chosen. For Penn State students, program quality and the availability of a special program overwhelmed all other considerations by together claiming the top ranking of almost half the students. Costs or distance were ranked in first place by a third of the students, but were an important second factor for many more.

If program quality, availability of a special program, and job or graduate school prospects are perceived measures of academic quality, if distance and costs are perceived measures of environmental quality, students choosing different types of institutions do weight their considerations differently. What we have called quality measures predominate in the thinking of students finally selecting private institutions or public institutions outside of Pennsylvania. Matriculants at Pennsylvania state colleges and two year institutions emphasize convenience. Environmental considerations are less decisive for all types of institutions.

Conclusions

Now that the situation has been more clearly defined, policy considerations become necessary. Will the University devise specially targeted recruitment tactics for students of different abilities? How will we respond when the legislature demands that all the state-supported institutions stop competing for the same students? How will the University maintain or improve the quality of its students as the size of the prospect pool diminishes? Will this institution compete with out-of-state institutions to increase the number of applications, or will it focus on Pennsylvanians and try to increase the ratio of students accepting an offer of admission?

As the University begins to implement shifts in recruitment strategies, research will be needed to evaluate the effectiveness of alternate tactics. What kinds of institutional intervention change the choice of that one student in four who does not attend her preferred school? How is the message of quality communicated early enough to attain favored status among more students?

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SUMMARY OF:
COMPETITION IN HIGHER EDUCATION: BOSTON COLLEGE RESEARCH FINDINGS

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Boston College

It is now self-evident that the concerns of Admissions offices are congruent with those of everyone interested in the future of higher education. Most institutions must look forward to an uncertain future in which many schools will be forced to close, while the survivors will likely face a period of retrenchment which will affect both the quality and composition of their student bodies. Many institutions will experience profound changes in character and mission.

Decision-makers who wish to guide their schools through this period of change successfully should do three things:

1. Learn the lessons of marketing in Admission. Research should highlight what is attractive about the institution and help to devise an accurate but persuasive presentation. Research should suggest ways the office may more effectively deal with applicants.
2. Extend these lessons to encompass research on how student expectations, perceptions and evaluations of the institution and its competitors relate to behaviors from before college choice to post-graduate education and careers. These behaviors would include: inquiry, application, matriculation, academic achievement, drop-out, stop-out, transfer, persistence to graduation, admission to professional or graduate schools, occupation, earnings, etc.
3. Change the administrative structure to facilitate university-wide use of research information and specifically to coordinate enrollment management.

The research reported here addresses one area (in #2 above) much in need of systematic study: the conceptualization, measurement and policy implications of different notions of competition. We shall endeavor to study competition vis-a-vis the choice of process of applicants who have been accepted to Boston College. This decision is a critical juncture for the applicant and for the institution. Some choose to attend Boston College and others, although accepted, go elsewhere. The fact that they are attracted enough to apply makes it important to understand how their views of similar sets of schools differ. Since these accepted applicants typically apply to four or five schools, direct attention can be given to measuring and understanding in what sense BC does "compete" with other schools at the level of hard decision-making.

Methods: The results presented here are based on 2542 questionnaires returned after the July 6, 1977 mailing to 5479 applicants accepted to the Class of 1981. Except for a slight overrepresentation of matriculants, which can be corrected, the sample has proven to be free of major biases and items have shown high reliability. Those who have firmly declared their intention to come to BC by giving a deposit (matriculants) are asked their views of Boston College and of the school they would have attended if they hadn't chosen BC. Non-matriculants are asked to contrast their views on Boston College with their attitudes toward the school they have chosen to attend.

Two distinctly different modes of analysis will be employed. Although both rely on self-reports from the same sample, each analysis will be based on a separate and unique series of questions. It is hoped that some measure of convergent validity may thereby be obtained. First, the analysis of application overlap involves straightforward bivariate analysis of responses to objective (simple recall) questions. Accepted applicants were asked to list all of the schools to which they applied. For each school listed, they were to indicate whether they had been accepted or not. Second, the analysis of student perceptions uses multivariate techniques on attitudinal indicators. Respondents were asked to rate Boston College and another school (either their alternate choice or the school they plan to attend) on 28 attributes. The Likert, five-point scale ranged from, 1 = unsatisfactory to 5 = excellent.

Competition as Measured by Application Overlap: By dividing the number of common applications reported in the sample by the sampling rate (.4634), an estimate of the size of overlap for each competitor may be computed. Boston College's top competitor in this sense shared 906 applications. This is around 17% of BC's accepted applicant pool. Number 15 attracts about 5% and number 50 attracts about 2% (almost 100 applications). Keeping in mind that the typical BC applicant applies to four or five schools, one cannot easily identify the serious competitors. Many apply to some schools as "safety valves" in case of rejection from their preferred choices.

How well does BC compete for common applicants? At the outset it should be emphasized that the goal of the institution should not necessarily be to "win" more common applicants from competitors. Standards for admission vary, the cost may be too high to the institution, and it may just be unfair to students.

Draw rates (see Table 1) may be computed for each competitor. These draw rates may be observed to covary positively with the acceptance rate of schools. The schools described in the first three columns of Table 1 accept almost everyone BC accepts and Boston College outdraws each over 2 to 1. The schools in the last three columns are more "selective" than BC and all but one easily outdraw Boston College. The six schools which fall in the middle three columns reject a good proportion of BC's common applicants and all but one slightly outdraw BC. On this basis, Boston College probably should be fitted in the lower range of the schools in the middle category. The six schools, Holy Cross, Tufts, Georgetown, UNH, Notre Dame and University of Vermont, can be usefully thought of as "targets" because they are similarly selective and are even with or slightly outdraw BC. The use of targets allows the policy-maker to establish reachable goals especially with regard to the "mix" of characteristics which define an institution.

Competition as Measured by Applicant Ratings of College Attributes: Two cognitive processes may be identified and modeled using factor analysis and discriminant analysis respectively:

1. Image-making - the association of attributes into patterns of perceptions about Boston College and other schools.
2. Decision-making - the appraisal of particular distinguishing attributes when making the final college choice.

The factor analysis, see Table 2, presents the regularities in the way matriculants view Boston College. The central importance of the factor labeled Scholasticism is displayed in Figure 1. These results help to highlight those attributes which make BC unique and attractive and may be used in a marketing strategy. The discriminant analysis, see Table 3, isolates those attributes which best predict the final college decision. Interestingly, the same seven attributes of Boston College and of other schools were selected, although in a different order. This pattern of push and pull is consistent with a synergetic view of competition. The Boston College planner who wishes to get the most efficient increase in yield would be well advised to give special consideration to these seven attributes.

The results of these two analyses can be used to position Boston College relative to its competitors. Figure 2 shows which schools are viewed similarly (using the mean ratings of each school on the six attributes which load highest on each factor in Table 2). BC clusters closely with two target schools and with the school which shares the most common applications. In Figure 3 the mean ratings on the seven attributes identified in Table 3 were used to measure the similarity of competitors to BC in the decision-making process. Significantly, Boston College clusters with the same six schools tagged as targets in the analysis of application overlap and draw (and not with school #1, which BC easily outdraws). It is remarkable that two analyses from such divergent assumptions conjoin so neatly. This is strong evidence for convergent validity and gives us confidence in our identification of these six schools as appropriate targets for policy purposes.

Table 1

Draw Rates of 15 Top Competitors for Applicants within Three Levels of Acceptance Rates

Acceptance Rate[a]								
High (70%+)			Medium (30–70%)			Low (0–30%)		
					Draw Rate[b]			
		High			Medium			Low
No.[c]			No.			No.		
4	99	6.38	12	61	.67	11	27	.18
2	97	2.27	9	58	1.13	7	13	.07
14	97	2.33	3	53	.53	13	10	1.00
1	96	2.20	5	44	.28			
10	89	3.44	15	42	.30			
8	87	2.04	6	37	.37			

Note. The product moment correlation between Acceptance Rate and Draw Rate is .74 [$t_{(13)} = 3.97$, p .001]. Predicted Draw Rate = (.0393 x Acceptance Rate) - .8342.

[a] The percentage of applicants accepted to Boston College who applied and were accepted at the competitor school.

[b] Draw rate = (a / b).60.

a = number who chose Boston College after having been accepted at Boston College and competitor school.

b = number who chose competitor school after having been accepted there and at Boston College.

.60 = constant which corrects for bias in sample towards those who chose to come to Boston College [ratio of non-deposits' sampling rate (.36) to deposits' sampling rate (.60)].

[c] Competitor number.

Table 2

Factors Derived from Matriculant's Ratings of 28 Attributes of Boston College

Factor 1 - Scholasticism	
College Faculty	.56
Specific Academic Programs	.55
Accelerated Programs/ Advanced Placement	.54
Variety of Courses	.51
Emphasis on Graduate Programs	.50
Research Reputation	.47
Teaching Reputation	.46
Religious Opportunities	.43
Coed Ratio	.42

Factor 2 - Reputation	
General Reputation	.71
Teaching Reputation	.67
Reputation of Alumni	.59
Quality of Students	.51
College Faculty	.44
Parent's Preference	.44
High School Counselor's Rating	.43

Factor 3 - Athletics	
Athletic Programs	-.79
Athletic Facilities	-.72
Social Activities	-.42

Factor 4 - Social/Spatial Relations	
Coed Ratio	.57
Social Activities	.48
Location of Campus	.47
Attractive Campus	.41
Distance from Home	.40

Factor 5 - Cost	
Costs	.74
Financial Aid	.40

Factor 6 - Size/Quality	
Student/Faculty Ratio	-.66
Research Reputation	-.52
Accelerated Programs/ Advanced Placement	-.48
Size of School	-.46
Quality of Students	-.43
College Faculty	-.42
High School Counselor's Rating	-.41

Note. Results from iterative principle factor analysis with oblique rotation (Delta = -1). Factors account for one eigen value or greater. Attributes which |load| (from structure matrix) .4 or greater are listed.

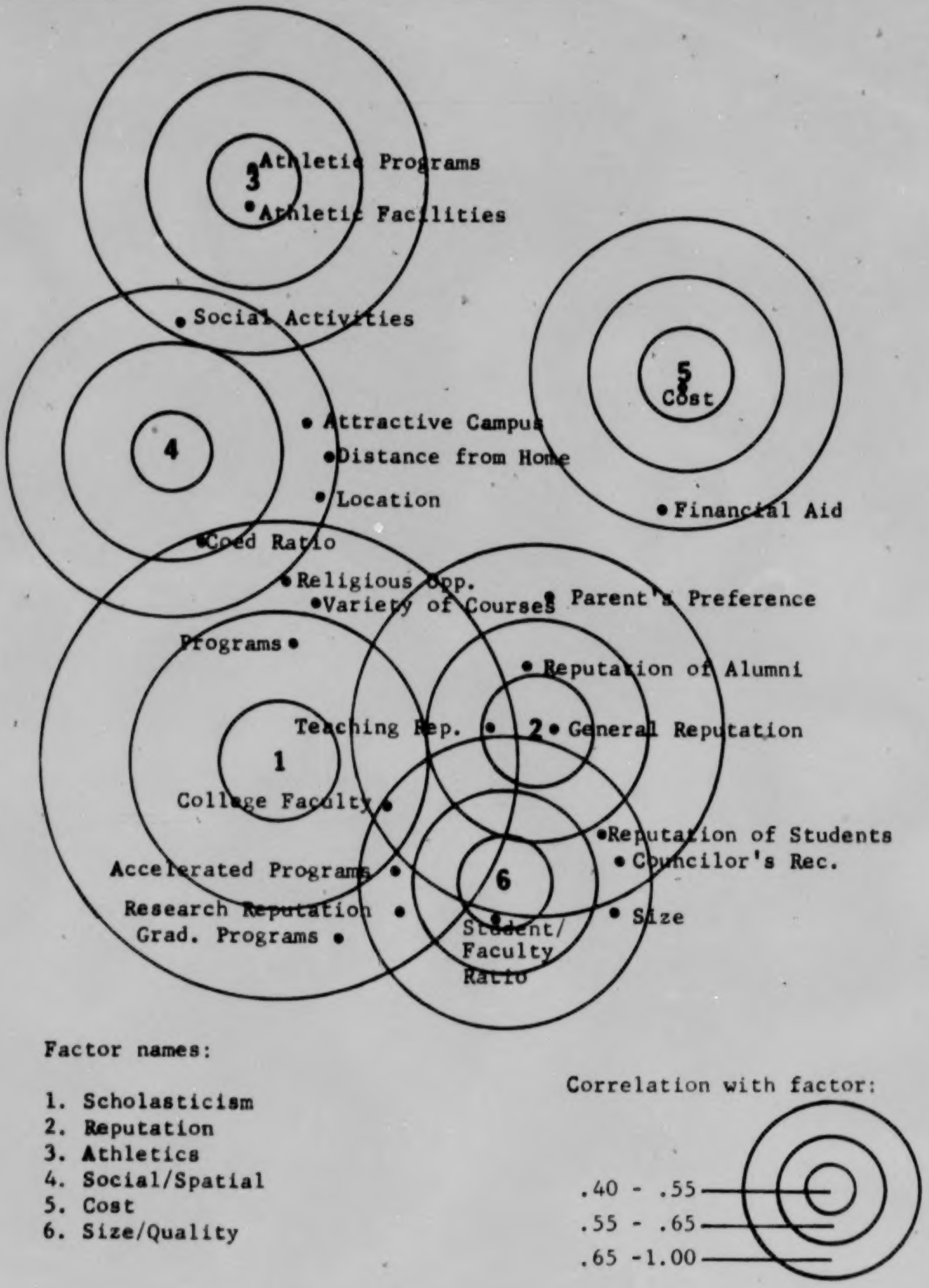

3
Athletic Programs
Athletic Facilities
Social Activities
5
Cost
4
Attractive Campus
Distance from Home
Location
Financial Aid
Coed Ratio
Religious Opp.
Variety of Courses
Parent's Preference
Programs
Reputation of Alumni
Teaching Rep.
2
General Reputation
1
College Faculty
Reputation of Students
Councilor's Rec.
Accelerated Programs
6
Research Reputation
Grad. Programs
Size
Student/Faculty Ratio
Factor names:
1. Scholasticism
2. Reputation
3. Athletics
4. Social/Spatial
5. Cost
6. Size/Quality
Correlation with factor:
.40 - .55
.55 - .65
.65 -1.00

Figure 1

Table 3

The Top 14 Predictors of College Decision

Boston College	D[a]	Other School[b]	D
Financial Aid	.28	Specific Academic Programs	-.24
Parent's Preference	.18	Parent's Preference	-.20
Specific Academic Programs	.17	Location of Campus	-.17
Size of School	.14	Financial Aid	-.17
Location of Campus	.13	Social Activities	-.16
Athletic Facilities	.11	Athletic Facilities	-.13
Social Activities	.11	Size of School	-.11

Note. R = .74.

[a] Standardized Discriminant Function Coefficients.

[b] Attributes of schools which non-matriculants say they will attend and the schools which matriculants give as their alternate choice.

Figure 2

Cluster Analysis Tree Diagram - Image-Making

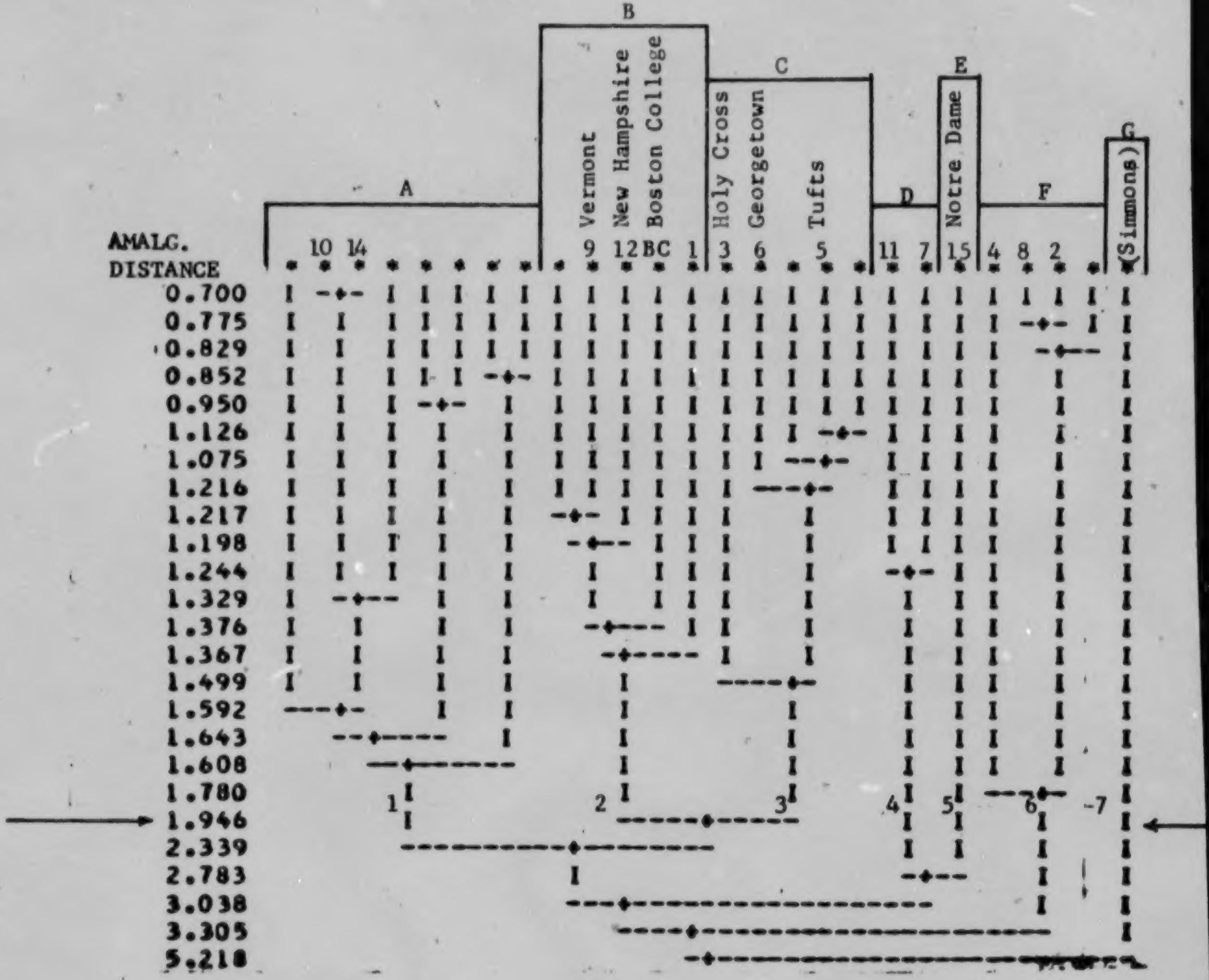
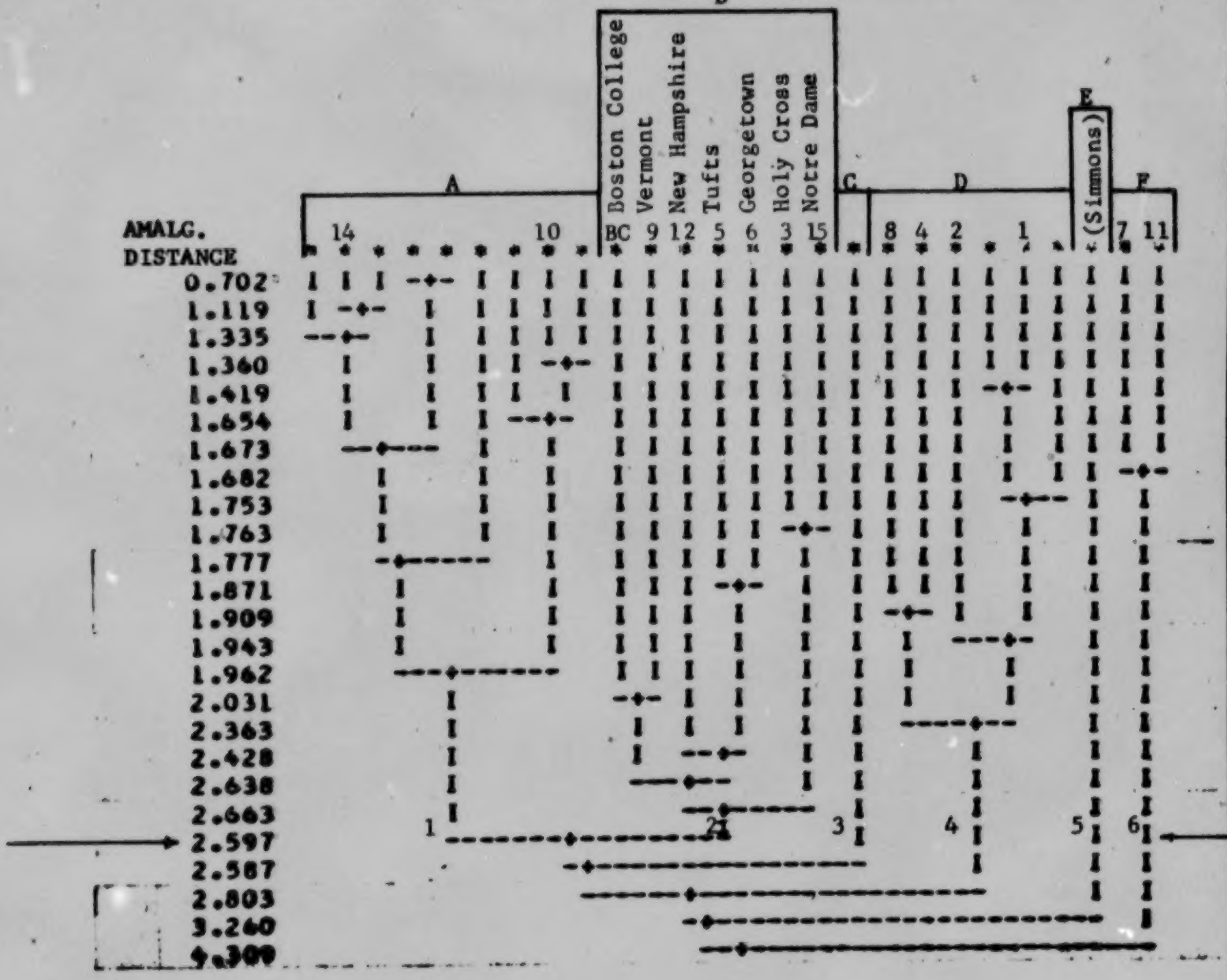

A
B
C
D
E
F
G
Vermont
New Hampshire
Boston College
Holy Cross
Georgetown
Tufts
Notre Dame
(Simmons)
AMALG.
DISTANCE
10
14
9
12
BC
1
3
6
5
11
7
15
4
8
2
0.700
0.775
0.829
0.852
0.950
1.126
1.075
1.216
1.217
1.198
1.244
1.329
1.376
1.367
1.499
1.592
1.643
1.608
1.780
1.946
2.339
2.783
3.038
3.305
5.218
1
2
3
4
5
6
-7

Figure 3

Cluster Analysis Tree Diagram - Decision-Making


B
A
Boston College
Vermont
New Hampshire
Tufts
Georgetown
Holy Cross
Notre Dame
C
D
E
(Simmons)
F
AMALG.
DISTANCE
14
10
BC
9
12
5
6
3
15
8
4
2
1
7
11
0.702
1.119
1.335
1.360
1.419
1.654
1.673
1.682
1.753
1.763
1.777
1.871
1.909
1.943
1.962
2.031
2.363
2.428
2.638
2.663
2.597
2.587
2.803
3.260
4.309
1
2
3
4
5
6

PREDICTING APPLICANT POOL QUALITY CHANGES FROM DECREASES IN POOL SIZES

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INTRODUCTION

The central question of concern in this discussion is how one translates a known decline in the size of a potential student pool into an estimated drop in the overall quality of an applicant pool or entering class of freshmen. The national pool of potential first-time students for higher education can be expected to shrink approximately 25% in 1992 from the 1977 size. The evidence for this is virtually unassailable since the 1992 potential student pool (comprised mostly of 18 year olds or almost exclusively of 17-19 year olds) has already been born. The U.S. Bureau of the Census maintains reasonable accurate records on births and has documented[1] the expected 25% decline by 1992 of this age cohort. The decline of this age cohort in New York State is estimated at 39% by 1992 according to the New York State Education Department, chiefly because of the out-migration of students to other states.

How then will a 25% to 39% decrease in pool size influence the quality of a university's entering class as measured by a decrease in the mean or median SAT scores of the entering class. In the methdd proposed we make several antecedent assumptions which simplify the analysis; however, the importance of these assumptions may subsequently be tested in a sensitivity analysis. The assumptions include: 1) The national averages of SAT scores will change little over the next 15 years from the current averages; 2) most postsecondary institutions will not voluntarily shrink their undergraduate enrollments; 3) the relative attractiveness or desirability of institutions to potential applicants will remain stable; 4) the number of more desirable openings than the one filled by the student of average ability for a given college will remain unchanged for the college as the applicant pool shrinks. This is true simply because these openings are determined by the capacity of existing colleges and universities rather than the size of the applicant pool. A final assumption is that as the applicant pool shrinks, the number of students in each ability level will shrink by the same rate.

The required input data for the predictive calculations is just the median SAT scores (verbal and math) of the college of interest and the percent the applicant pool is expected to shrink. The output will be the predicted SAT median scores for the smaller or shrunken applicant pool.

Richard Darlington, Professor of Psychology at Cornell, provided invaluable assistance in clarifying the logic of the following argument. Any inaccuracies or faults in the method, however, are the sole responsibility of the author.

ESTIMATING QUALITY CHANGES

Although one could construe many alternative approaches for measuring "quality" of applicants and entering students, we conservatively accepted SAT scores as our benchmark of quality for two reasons. First, it has consistently remained, over the years, one of the best predictors of performance in college; and second, the significant amount of study and research on SAT scores has demonstrated that the difficulty level of the test has remained stable over time, therefore rendering it suitable for longitudinal comparisons. Also, even though SAT's may not measure the full range of behaviors indicating academic potential and success in college, they correlate moderately with other measures purportedly indicating academic potential such as grade point averages and rank in class. The use of SAT's should not be construed as a limitation of the methodology, however, since the method may be applied to other scores if they are available.

The question thus becomes one of estimating drops in the SAT scores of a college's applicant pool over time. More importantly, we would like to estimate changes in the scores of that fraction of the applicant pool which ultimately enters the college. This latter subset is the entering class and their ability levels therefore persist in the institution over the next four years.

In order to estimate changes several simplifying assumptions need to be made.

Assumption 1. The national averages for verbal and math SAT scores will change little over the next decade from the current averages. ("The Chronicle of Higher Education" in its 9/18/78 edition reported that the national verbal SAT scores had leveled off this year.[2] Even if scores continue to decline estimates of quality changes can be revised accordingly.)

Assumption 2. Most postsecondary institutions will not voluntarily shrink their undergraduate enrollment quotas. (Many budgetary decisions made at colleges and universities over the last decade were based on increasing enrollments and low levels of inflation. Given the reversal of these two conditions, most colleges will find it difficult to decrease their operating revenues, and still meet ever-escalating costs.)

Assumption 3. The relative attractiveness or desirability of institutions to potential applicants will remain stable. (As colleges find their attractiveness to applicants slipping, and this will be manifest through smaller numbers of applications, they will jump on the marketing bandwagon. When nearly all colleges have begun marketing their programs, the edge marketing might have provided disappears.)

Assumption 4. As the applicant pool shrinks, the number of students in each ability level will shrink by the same rate. (The number of poorer-in-ability students e.g., those scoring between 200 and 300, will shrink just as much as the high ability students scoring between 700 and 800 on SAT examinations.)

Assumption 5. Actually, this assumption logically follows from assumptions 2 and 3: The number of more desirable openings than the one filled by the student of average ability for a given college, will remain unchanged for the college as the applicant pool shrinks. (More prestigious institutions will always fill their quotas first even if it means dipping deeper in the applicant pool to draw students away from less prestigious institutions.)

There is also probably a number of less important ceteris paribus assumptions which will not be detailed here. For example, we assume the gap between public and private tuition rates will not widen significantly. If it did, cost of institution might become a more significant determinant of choice than academic reputation or prestige.

Returning to Assumption 5, essentially, the suggestion is that some institutions for whatever the reasons (usually such reasons include academic reputation) are more preferable than other institutions to the majority of students. The more preferable institutions often manifest their "preferred status" through larger numbers of applications received, smaller acceptance ratios and so forth. Furthermore, since few institutions (if any) are willing to voluntarily shrink their enrollment quotas, the more preferable institutions will probably start accepting and enrolling some students who hitherto would have attended the less preferable institutions. Lest this sound elitist it should be pointed out that the Admissions Office at Cornell University has, for a number of years, surveyed applicants who applied to and were accepted by Cornell, yet chose to attend another institution. Such surveys consistently show that academic reputation is at least one factor in the decision. Dean Whitla at Harvard University conducted an unpublished overlap study to determine which colleges were chosen when students were offered admission at more than one institution; although the study was informative in terms of which colleges and universities have greater drawing power and therefore are more preferable to students, the major conclusion to be drawn for the purpose of this analysis is that for any given institution there is probably a fixed number of more desirable openings at other institutions than those offered by the college. Furthermore it follows there are a fixed number of more preferable openings than the one filled by the college's average-inability freshman. We shall call this the fixed number hypothesis: it is a number which will be preserved in the following method of estimating student quality changes.

The first step in the method is to convert the SAT scores into standard scores, which is easily done since we know the standard deviation of SAT scores. The Z score is converted to a proportion (area under the normal curve) corresponding to the proportion of the population filling the "fixed number of openings" more desirable than the opening filled by the college's average-in-ability freshman. Since a proportionately greater percentage of the new reduced population of applicants will fill this fixed number of openings, the proportion or area under the normal curve is adjusted accordingly. The new areas are converted back to a Z scores and the Z scores are in turn converted to the expected SAT scores of the smaller applicant pool.

The method is most easily understood by following an example. The following table indicates the median SAT scores of last year's entering Cornell freshmen and indicates national medians as well. (The national distribution closely approximates a normal distribution, therefore, the median is approximately equal to the mean.)

TABLE 1

Recent SAT Scores for the National and Cornell Entering Class Pools

	VERBAL	MATH
Endowed Division	600	680
Statutory Division	590	640
National	429	471

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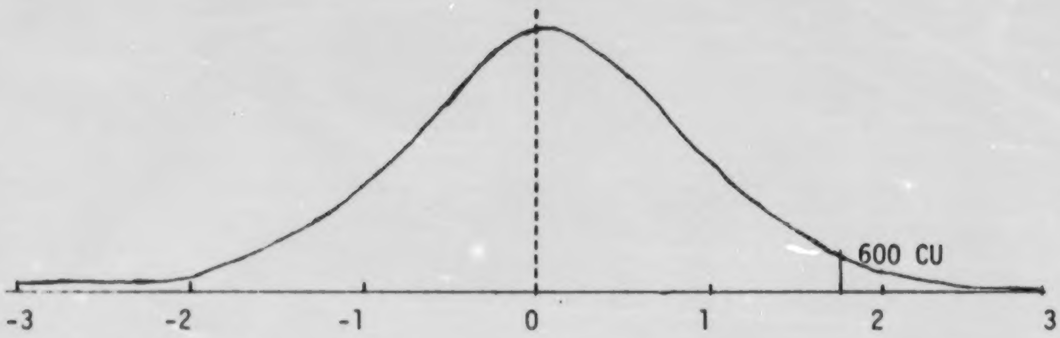
SAT scores are distributed approximately as follows nationally:



Z	-3	-2	-1	0	1	2	3
SAT verbal	229	329	429	529	629	729	
SAT math	271	371	471	571	671	771	

"Table B" from Glass and Stanley's Statistical Methods in Education and Psychology[3] presents a handy reference for converting scores such as SAT scores into probabilities yielding relative location in the population. Probabilities are determined by the area under the curve to the left of a given score (line). These probabilities tell us what proportion of the population scores below a given score. One minus this area or probability tells us what proportion scores above the given score.

The first step, however, is to convert our SAT score into a standard score. This is easily done since we know the standard deviation (SD) of SAT scores is around 100. Thus:

$$Z = \frac{SAT_{\text{Cornell}} - SAT_{\text{national average}}}{SD} \qquad \text{(eq.1)}$$

for the Endowed Verbal scores

$$Z_{EV} = \frac{600 - 429}{100} \qquad \text{(eq. 2)}$$

$$Z_{EV} = 1.71 \qquad \text{(eq. 3)}$$

Recall we are interested in preserving the number of students above the average or median Cornell student. Thus we determine the proportion of the population above 600 by looking up the area for a Z score of 1.71 and subtracting it from 1.

$$A_{\text{below 600}} = .9564 \qquad \text{(eq. 4)}$$

$$A_{\text{above 600}} = 1 - .9564 \qquad \text{(eq. 5)}$$

$$A_{\text{above 600}} = .0436 \qquad \text{(eq. 6)}$$

In other words the average Cornell student in the Endowed Division has 4.36% of the current SAT-taking population ahead of him in ability and these greater ability students are presumed to occupy the fixed number of more preferable openings than the one occupied by the median student. If the population were to decrease 25%, to 75% of the current level, then in order to preserve the number of students ahead of our average student, a proportionately greater percentage of the reduced population will need to lie ahead of our average Cornell student. The mathematics are as follows:

N = Current Population

N' = Reduce future population

P = Current proportion above Cornell median

P' = Future proportion above Cornell median

α = Fixed number above Cornell median

$$\alpha = N\ P = N'\ P' \qquad \text{(eq. 7)}$$

We know $P = .0436$ and if the population shrinks 25% $N(.75) = N'$.

Substituting:

$$N\,(.0436) = (.75)\,N\,P' \qquad \text{(eq. 8)}$$

$$P' = .0581 \qquad \text{(eq. 9)}$$

In other words, 5.81% of the future population will occupy the fixed number of preferable openings in 1992 when the population of applicants has decreased 25% from the current level. Converting this proportion or area (.0581) back to a Z score from the table yields

$$Z_{1992} = 1.57 \qquad \text{(eq. 10)}$$

$$Z_{1992} = \frac{SAT_{1992} - SAT_{national}}{SD} \qquad \text{(eq. 11)}$$

$$1.57 = \frac{SAT_{1992} - 429}{100} \qquad \text{(eq. 12)}$$

$$SAT_{1992} = 157 + 429 \qquad \text{(eq. 13)}$$

$$SAT_{1992} = 586 \qquad \text{(eq. 14)}$$

Thus our Endowed College's median verbal score can be expected to drop 600 - 586 = 14 points in 1992. Table 2 presents expected drops

TABLE 2

CALCULATIONS OF SAT POINT DROPS FOR SHRINKING APPLICANT POOLS

VERBAL	SAT_{1977}	Z_{1977}	A= Area Above Z_{1977}	A Revised for 25% Population Drop $A' = \frac{A}{.75}$	Z_{1992}	SAT_{1992}	Point Drop
Endowed	600	1.71	.0436	.0581	1.57	586	- 14
Statutory	590	1.61	.0537	.0716	1.46	575	- 15
National	429	1.00				429	
MATH							
Endowed	680	2.09	.0183	.0244	1.97	672	- 12
Statutory	640	1.69	.0455	.0606	1.55	626	- 14
National	471	1.00				471	

for SATs in the Endowed and Statutory Colleges corresponding to an expected decrease of 25% of the National applicant pool size by 1992. Essentially a 12 to 15 point drop will accompany a 25% decline in the size of the applicant pool for Cornell students on verbal and math SATs.

The strength of assuming the fixed number α hypothesis is that it obviates the need for considering the competitive edge of elite peer institutions - they are allowed to fill their classes first. All institutions lose some ground in shrinking pool situations because of quality drops. However, we have assumed Cornell does not lose any of its relative standing in the perceptions of potential applicants. The other advantage of the fixed number hypothesis is that one need not explicitly consider the unmanageable complications of a yield ratio, applicant reserve ratio, and so forth in this analysis of quality. These things are important for maintaining enrollment quotas, of course, and can show forthcoming weaknesses in individual colleges' drawing power. However, we can deal with quality changes by examining the direct measures of quality such as median SAT scores. Also, the robustness of the technique can be determined in a sensitivity analysis by varying some of the assumptions. For example, one might wish to assume the national SAT scores averages will decrease another 10 points by 1992. This can be entered in equation 11.

Thus a method for predicting applicant pool ability levels as a function of applicant pool size and current ability levels exists. The method may also be used to predict increases in ability if applicant pools should ever swell in number.

REFERENCES

1. U.S. Bureau of the Census, Current Population Reports, series P-25, Nos. 519 and 601.
2. "The Chronicle of Higher Education", September 18, 1978, Vol XVII, No. 3, page 3.
3. G. Glass and J. Stanley, Statistical Methods in Education and Psychology, Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1970. pages 513 - 519

14

ACCESS TO FOUR-YEAR COLLEGES AND UNIVERSITIES: PRESENT AND FUTURE DIFFERENCES AMONG URBAN, SUBURBAN, AND RURAL RESIDENTS

Dr. Thomas M. Edwards
Frostburg State College

This study uses demographic data to depict the recent and future population trends in Maryland and relates those trends and the energy crises to the prospective enrollment of public 4-year higher education. At the October 1978 NEAIR Annual Conference, there was considerable interest among institutional representatives in marketing, recruitment, and retention--areas which enhance enrollment. From a state perspective, there is a concern to provide equitable access to public four-year institutions for rural, urban, and suburban residents, as well as residents in each county. The state taxes everyone.

During the 1940's and 1950's, there was a sharp population shift nationally from rural areas to large metropolitan areas. The 1960's were a swing period and the 1970's saw a reversal of the earlier trend with large numbers of Americans moving out of large cities and into outer suburban and rural areas.

Keiser[1] has analyzed counties by three sizes. A small county is one whose principal community has fewer than 50,000 people. A large county is one whose principal community has more than 250,000 people. Nationally, between 1970 and 1976, 68% of all growth occurred in the small-size counties. 30% occurred in the medium-sized counties, while 2% occurred in the large counties. The pattern was even more striking in northeastern states where 87% of the growth occurred in small counties, 13% occurred in medium-size counties, while shrinkage occurred in large counties. The northeast, however, had only 4% of the national growth with the mid-west attaining 10%, the south 53%, and the west 33%. The more striking change in the northeast was not the total growth but the population shift from one county to another. For example, in Maryland,[2] the city of Baltimore declined by 8% between 1970 and 1976 while five outer suburban counties grew between 21% and 70%.

Figure 1 indicates the names and location of all 4-year state universities and colleges in Maryland. The inset that is displayed at the lower left of the table is the city of Baltimore which contains most of the colleges. The University of Maryland, College Park, is just above the blank square which is Washington, D. C.

Most of the 4-year institutions in the state of Maryland were founded between 50 and 150 years ago. Their geographic locations correspond to where people lived in Maryland at the time the colleges were founded. As we move into the future, the population of Maryland will be moving farther away from our public college campuses and fewer students will be able to commute to them. As there will be only limited changes in the number of Maryland residents who will be of the usual college age during the period of 1975 to 1990, the principal population change for this age group will be a shift rather than growth. The impending energy crisis will also reduce the number of students who will be able to commute to college. Energy chief James Schlesinger has indicated that there will be a marked reduction of recoverable U.S. petroleum and natural gas by the year 2,000. The era of the automobile as we know it will come to an end.

In Figure 2, the areas of Maryland which are dotted are the areas from which a student could commute to the nearest 4-year public college assuming a 25-mile round trip. A 25-mile trip by road is about equivalent to a 10-mile radius on a map. Robert D. Newton of Penn State University has indicated that the current limit of student commuting is a 32-mile round trip, and that very few students commute beyond that distance. The 32 miles would be reduced to an estimated 25-mile round trip by the year 1990 due to the forthcoming energy crises.

It is important to note that as the radius of commuting to a college decreases, the area in square miles that the college can serve will decrease very rapidly. Area equals πr^2. If the radius of commuting were decreased by 10%, the square mileage would decrease by 19%. If the radius of commuting were reduced by 50%, the square mileage would decrease by 75%. With a 16-mile driving trip each way,

FIGURE 1

NAMES AND LOCATIONS OF ALL FOUR-YEAR STATE COLLEGES IN MARYLAND

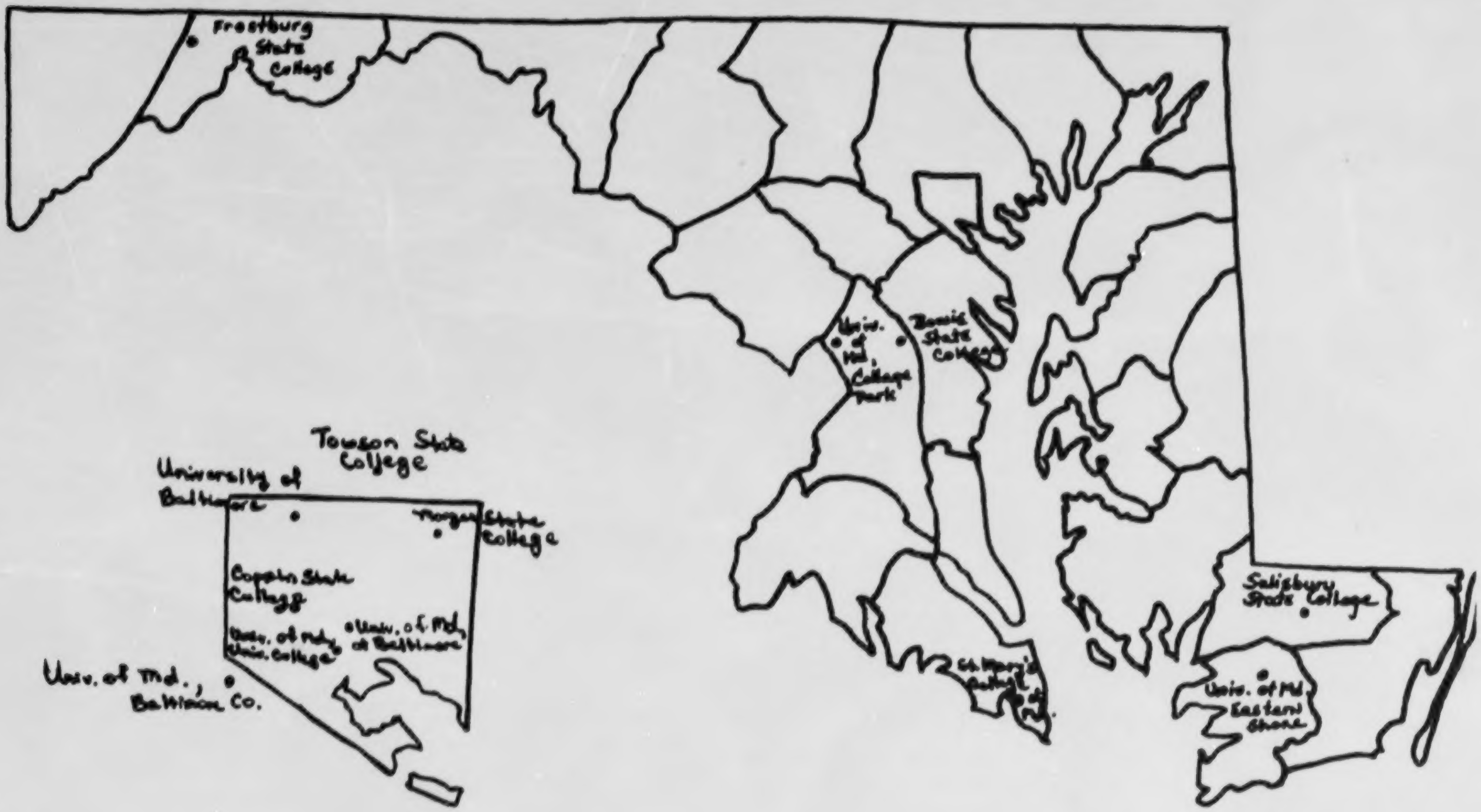
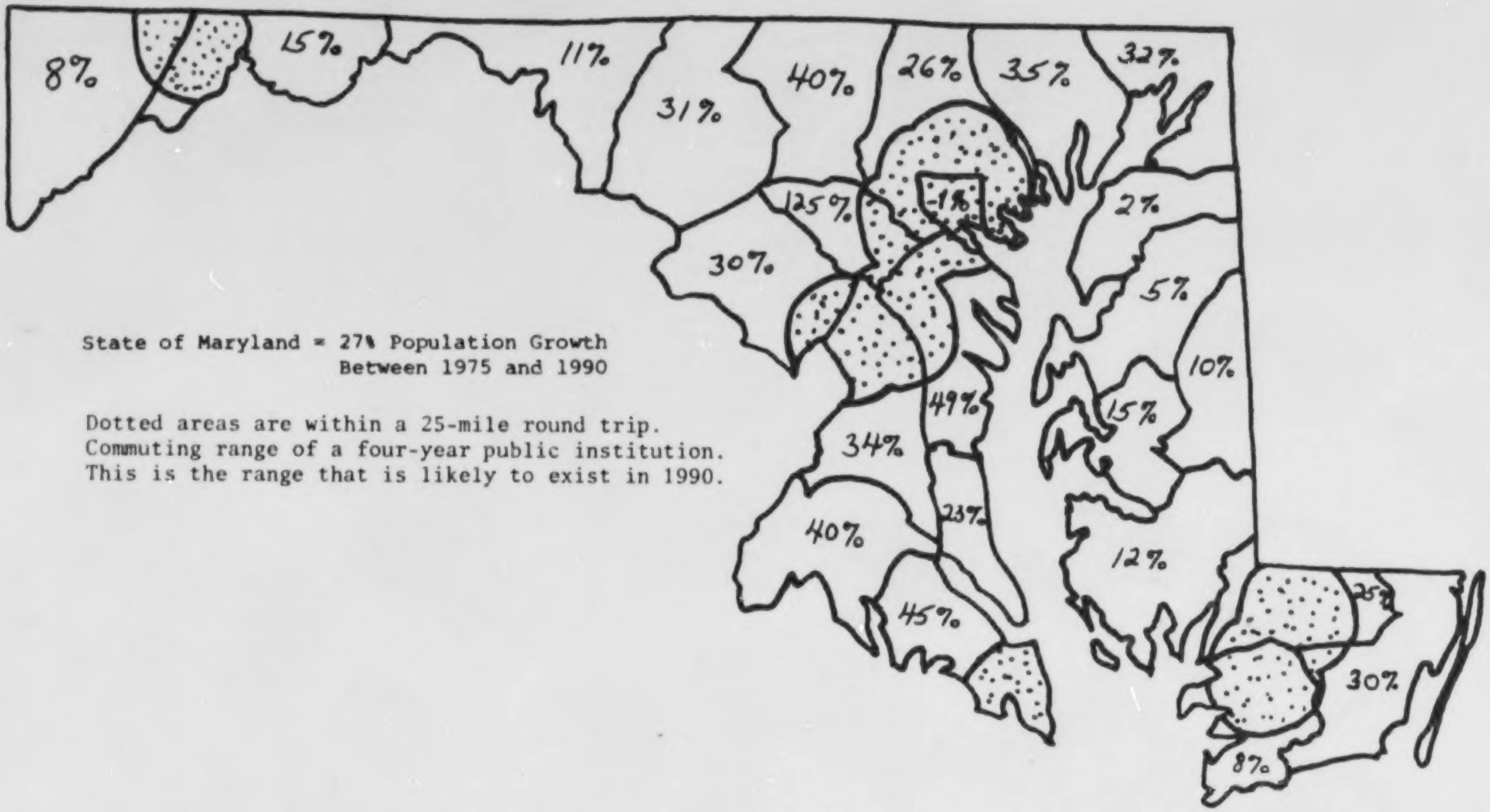

Frostburg State College
Univ. of Md. College Park
Bowie State College
St. Mary's College of Md.
Salisbury State College
Univ. of Md. Eastern Shore
Towson State College
University of Baltimore
Morgan State College
Coppin State College
Univ. of Md., Univ. College
Univ. of Md., at Baltimore
Univ. of Md., Baltimore Co.

FIGURE 2

AREAS OF MARYLAND WITHIN COMMUTING RANGE OF ALL FOUR-YEAR PUBLIC COLLEGES IN MARYLAND IN 1990


8%
15%
11%
31%
40%
26%
35%
32%
-1%
125%
30%
2%
5%
10%
15%
49%
34%
23%
40%
45%
12%
25%
30%
8%

State of Maryland = 27% Population Growth
Between 1975 and 1990

Dotted areas are within a 25-mile round trip. Commuting range of a four-year public institution. This is the range that is likely to exist in 1990.

which comes to about a 12.8 mile straight line on a map, a college today would serve about 514 square miles of commuters. With a 25-mile round trip, the same college would serve only 314 square miles of commuters in 1990.

Figure 2 also includes percentages of growth for each county between 1975 and 1990. As you can see, the growth is heaviest in the outer suburbs and is also evident in the rural areas and inner suburbs.[3] The city of Baltimore is projected to shrink by 1%. This table clearly portrays the population moving rapidly away from the public 4-year institutions while the radius of commuting is likely to shrink. The combined effect of these two forces is that large numbers of students who are now able to commute to college will simply be stranded. In the absence of a remedy, the enrollment at our 4-year public institutions is likely to drop very sharply during this period even though the population of 18 to 23-year-olds will decrease by only a limited amount. The largest commuting zone which corresponds to a narrow area between Towson, Maryland, and College Park, Maryland, which is roughly the Baltimore-Washington Corridor, contains 87.3% of all full-time undergraduate enrollment in its institutions while the five outlying institutions contain only 12.7% of all full-time undergraduates. Maryland is quite unusual in having such an extraordinary concentration of its public 4-year institutions in a single, very small land area. This pattern contrasts very sharply to the state of Massachusetts, for example, which has its state institutions distributed widely over the state. (See Boucher.[4])

Table 1 depicts the actual and the equalized enrollment for each county.[5] Specifically, equalized enrollment is the number of students a county would have if students from that county were enrolled in proportion to the county's population size. A county which has a percentage difference of -67% would have to have three times as many of its residents enrolled as students in order to be at the state average. The percentage differences between actual and equalized enroll-

TABLE I

DIFFERENCES BETWEEN ACTUAL AND EQUALIZED* COUNTY ENROLLMENT OF FULL-TIME UNDERGRADUATES IN FOUR-YEAR PUBLIC INSTITUTIONS, FALL 1975

County	1975 County Population	Actual College Enrollment	Equalized* College Enrollment	Difference	Percentage Of Difference
Allegany	82,790	713	950	-237	-25%
Anne Arundel	343,670	3,137	3,942	-805	-20%
Baltimore County	660,990	8,454	7,582	+872	+12%
Calvert	25,400	161	291	-130	-45%
Caroline	20,620	167	237	-70	-30%
Carroll	80,380	473	922	-449	-49%
Cecil	56,700	279	650	-371	-57%
Charles	59,820	253	686	-433	-63%
Dorchester	29,640	280	340	-60	-18%
Frederick	95,350	365	1,094	-729	-67%
Garrett	22,090	105	253	-148	-58%
Harford	132,970	1,198	1,525	-327	-21%
Howard	98,850	1,397	1,134	+263	+23%
Kent	16,780	103	192	-89	-46%
Montgomery	591,490	9,819	6,785	+3034	+45%
Prince George's	711,010	8,586	8,157	+429	+05%
Queen Anne's	19,650	118	225	-107	-48%
St. Mary's	52,840	510	606	-96	-16%
Somerset	19,090	296	219	+77	+36%
Talbot	25,860	192	297	-105	-35%
Washington	108,210	415	1,241	-826	-67%
Wicomico	57,850	946	664	+282	+42%
Worcester	27,830	406	319	+87	+27%
Baltimore City	848,750	9,675	9,737	-62	-01%
TOTAL KNOWN COUNTY	4,188,630	48,048	48,048		
Unknown County		234			
		48,282			

*Equalized College Enrollment is the number of students a county would have if students from each county were enrolled proportionally to the size of the county in the state.

ment are depicted for each county in Figure 3.

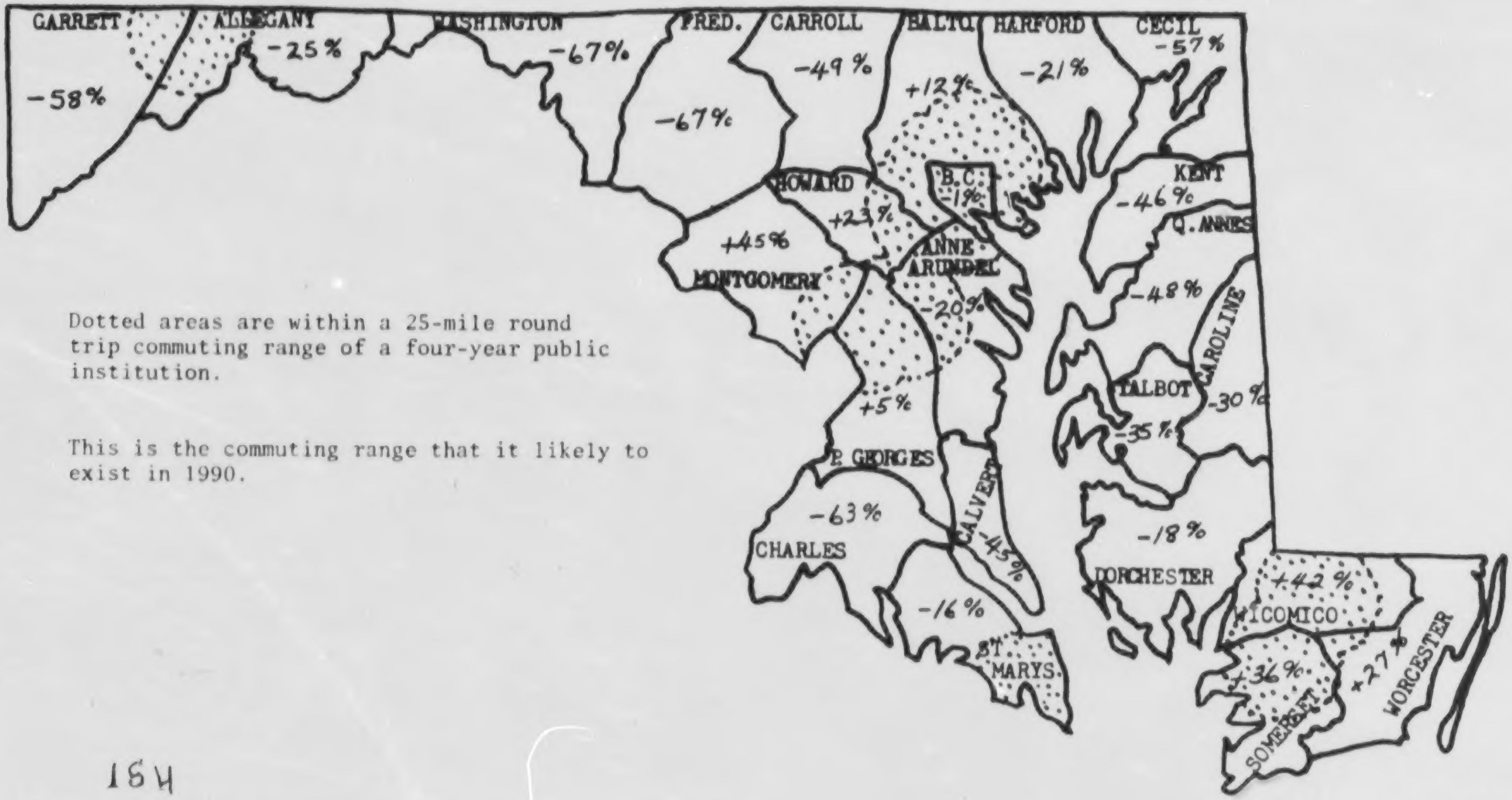
The data for Fall 1975 indicate that counties close to the four-year public colleges have a relatively high proportion of their population attending college, while the more distant counties have a low enrollment. The four rural counties which are within commuting distance of a public college have enrollment 10% above the state average, comparable to that of suburban counties. The twelve rural counties which do not have easy commuting access have enrollment 48% below the state average; their enrollment is about half that of the city of Baltimore and less than half that of the suburbs. Thus, the twelve "distant" counties pay their share of state taxes but receive about half of their share of access to the public colleges. The total shortfall in all 16 counties is 4,982 full-time undergraduates.

The sharp geographic difference appears to be due primarily to two causes: (a) discriminatory admissions--due to residence hall shortages, colleges can admit only as many non-commuters as they have accommodations, while they are not similarly restricted in admitting commuters; and (b) student costs--the cost of living in a residence hall is higher than that of commuting. Since many students are in a marginal economic situation, the added cost of living in a residence hall may prevent them from attending colleges.

Table 2 depicts the projected increase in geographic disparity in access to college. From 1975 to 1990, the following population projections[3] were made: The population of Baltimore City, which is totally within commuting range, will decrease by 1%. The population of the 11 counties which are partially within commuting range will increase by 35%. Much of this increase will occur in the outer sections of those 11 counties. The population of the 12 counties which are totally out of commuting range will increase by 27%. The current enrollment excesses and shortfalls are depicted in the right-hand column of Table 2.

FIGURE 3

PERCENTAGE OF DIFFERENCE BETWEEN ACTUAL AND EQUALIZED COUNTY ENROLLMENT OF FULL-TIME UNDERGRADUATES IN FOUR-YEAR PUBLIC INSTITUTIONS, FALL 1975


GARRETT
-58%
ALLEGANY
-25%
WASHINGTON
-67%
FRED.
-67%
CARROLL
-49%
BALTO.
+12%
HARFORD
-21%
CECIL
-57%
B.C.
-1%
HOWARD
+23%
+45%
MONTGOMERY
ANNE ARUNDEL
-20%
KENT
-46%
Q. ANNES
-48%
CAROLINE
-30%
TALBOT
-35%
+5%
P. GEORGES
-63%
CHARLES
CALVERT
-45%
-16%
ST. MARYS
-18%
DORCHESTER
+42%
WICOMICO
+36%
SOMERSET
+27%
WORCESTER

Dotted areas are within a 25-mile round trip commuting range of a four-year public institution.

This is the commuting range that it likely to exist in 1990.

TABLE 2

DIFFERENCES BETWEEN ACTUAL AND EQUALIZED ENROLLMENT FOR COUNTIES OF VARYING DISTANCES FROM PUBLIC FOUR-YEAR INSTITUTIONS, FALL 1975

Counties Fully Within Commuting Range* of Four-Year Public Institutions:

County	Pop. in 1975	Pop. in 1990	Change	% of Pop. Change	1975 % of Difference Between Actual and Equalized** County Enrollment***
Baltimore City	848,750	837,420	-11,330	-01%	-01%

Counties Partially Within Commuting Range* of Four-Year Public Institutions:

County	Pop. in 1975	Pop. in 1990	Change	% of Pop. Change	1975 % of Difference Between Actual and Equalized** County Enrollment***
Allegany	82,790	94,840	12,050	15%	-25%
Anne Arundel	343,670	511,090	167,420	49%	-20%
Baltimore Co.	660,990	830,740	169,750	26%	+12%
Garrett	22,090	23,900	1,810	08%	-58%
Howard	98,850	222,310	123,460	125%	+23%
Montgomery	591,490	770,230	178,740	30%	+45%
Prince George's	711,010	955,650	244,640	34%	+05%
Somerset	19,090	20,600	1,510	08%	+36%
St. Mary's	52,840	76,440	23,600	45%	-16%
Wicomico	57,850	72,200	14,350	25%	+42%
Worcester	27,830	36,190	8,360	30%	+27%
	2,668,500	3,614,190	945,690	35%	

Counties Not Within Commuting Range* of Four-Year Public Institutions:

County	Pop. in 1975	Pop. in 1990	Change	% of Pop. Change	1975 % of Difference Between Actual and Equalized** County Enrollment***
Calvert	25,400	31,340	5,940	23%	-45%
Caroline	20,620	22,770	2,150	10%	-30%
Carroll	80,380	112,710	32,330	40%	-49%
Cecil	56,700	74,800	18,100	32%	-57%
Charles	59,820	83,590	23,770	40%	-63%
Dorchester	29,640	33,230	3,590	12%	-18%
Frederick	95,350	125,250	29,900	31%	-67%
Harford	132,970	179,960	46,990	35%	-21%
Kent	16,780	17,060	280	02%	-46%
Queen Anne's	19,650	20,600	950	05%	-48%
Talbot	25,860	29,740	3,880	15%	-35%
Washington	108,210	119,640	11,430	11%	-67%
	671,380	850,690	179,310	27%	
Maryland Total	4,188,630	5,302,300	1,113,670	27%	

*Commuting Range = a 25-mile round trip. This commuting range is likely to be in effect in 199

**Equalized College Enrollment is the number of students a county would have if students fro each county were enrolled proportionally to the size of the county in the state.

***Full-time undergraduates at four-year public institutions.

In sum, Maryland's population is projected to rapidly move away from the four-year colleges, the currently distant counties are severely under-enrolled and the forthcoming energy crises will sharply decrease the distance a student can commute. A large and increasing proportion of Maryland's population will be stranded--unable to attend a four-year public college--unless substantial remedies are implemented.

References

[1] Keiser, Sharon, Department of Policy Development, State of North Carolina, October 5, 1978.

[2] Maryland Statistical Abstract, 1977, Maryland Department of Economic and Community Development.

[3] Maryland Population Abstract, 1950-1990, Maryland Department of State Planning, February, 1976.

[4] Boucher, J.P., Various Perspectives on the Geographic Distribution of New Enrollees in the Massachusetts State College System, 1975-1976, Fourth Annual Conference of the Northeast Association for Institutional Research, October, 1977.

[5] Figures derived from Second Annual Desegregation Status Report, Volume 2, Maryland Council for Higher Education, February, 1976.

MODELING FUTURE MARKETS

Arthur J. Doyle
The College Board

This paper is intended to introduce higher education administrators to the existence and current capabilities of the College Board's on-line Volume Projection Service (VPS).

The VPS was originally developed for application to the Student Search Service, a valuable program used by admissions officers in identifying college-bound students who have certain interests, achievements, aptitudes, and other characteristics. During the past several years, the VPS has been extended beyond the Student Search Service to other student populations and expanded so that it can be employed to create two-way table distributions and rudimentary forecasts in addition to Search Service volume projections. These three capabilities are proving to be of increased importance to educational administrators at the postsecondary level having enrollment management and institutional planning responsibilities.

Administrators and researchers employing the VPS most often access those populations of students who graduated from high school in 1975, 1976, 1977 and 1978 and participated in the Admissions Testing Program (ATP) at any time during their high school years. Approximately one million students are found in the College Board's files for each of these four years and the characteristics of those students are contained in the annual editions of the ATP summary report publication entitled College-Bound Seniors. The data base is quite comprehensive and a primary source of information for post-secondary institutions located in the Northeast.

The VPS contains sample pools of 10,000 student records for each of the years identified, thereby allowing for the relatively flexible and rapid

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delivery of reliable estimates of numbers of college-bound students meeting institutional specifications. Although summary report data exists for the years 1972-74, pools for those years were not developed for the VPS. Also, the VPS specifications for the 1977 and 1978 Summary Report Service pools are far more comprehensive than those for the 1975 and 1976 pools.

A cost-free service to institutions, consortia, and public systems of higher education eligible to be included by the U.S. Office of Education in its current Education Directory: Higher Education, the VPS can help educators understand better the sizes of past, current, and future student populations and distributions of those populations, as will be illustrated in the case of Six State University.

The Student Search Service pools differ from those of the ATP Summary Report Service pools. When students complete the Student Descriptive Questionnaire (SDQ) as they register to take the SAT, or when they supply identifying information on their answer sheet at a PSAT/NMSQT administration, they answer questions about their interests, background, activities, and educational plans, and they indicate whether or not they wish to participate in the Student Search Service and be contacted by colleges and scholarship agencies.

Currently, anywhere from nine to twenty percent of the students registering for either of these examinations may not authorize the release of their names, thereby making the Student Search Service pools somewhat less inclusive than those of the Summary Report Service, yet extremely important to administrators responsible for managing college recruitment programs. As soon as possible each year, pools based on current information are added to the system. A complete listing of all Student Search Service and Summary Report Service pools available though the VPS can be found in Appendix A.

Data elements for the students in the ATP Summary Report Service pools include sex, grade level, geographic location, test scores, ethnic background, high school performance, intended college major, county of residence, estimated parental annual financial contribution to the cost of higher education, high school program, type of high school, veteran status, plans to be a resident or commuting student, educational aspirations, and plans to apply for placement in advanced courses.

The Volume Projection System is operated through computer terminals installed in each of the College Board's regional offices and connected by way of telephone lines to a computer at the Educational Testing Service in Princeton, New Jersey. Trained personnel in a regional office enter on the data terminal the specifications of students in whom an institution is interested. An estimate of the number of students having the characteristics the institution has specified is then generated from the pool and transmitted to the regional office.

The System is flexible; it allows a user to add, delete, or alter specifications any number of times to determine the size of the student population defined by varying sets of characteristics. The System also allows the user to switch from one available pool to any other pool so that volume projections on different populations (for example, the College-Bound Seniors or the Winter Search Service pools) can be obtained in one session with the System.

The projections include not only the number of students estimated, but also, because they are based on a sample rather than an entire group, the error associated with the estimate. A projection message might read:

```
10,000 STUDENTS ESTIMATED
(+/-10.0% I.E., BETWEEN 9,000 and 11,000 WITH 95% CERTAINTY)
```

In this message, 10,000 is the number of students estimated, and the error associated with the estimate is a plus or minus ten percent. Thus, the user receiving this message can expect between 9,000 and 11,000 students with 95 percent certainty.

A case study designed to demonstrate the application of the Volume Projection System in an institutional setting during the 1977-78 academic year is available through the College Board. The case begins with the institution's participation in the Winter Search Service and extends to VPS application to the ATP Summary Report Service pools. Volume projections, two-way tables, forecasts, and the flexibility of the VPS are demonstrated.

Another illustration of how an institution might employ the Volume Projection System follows. Administrators at a selective engineering institution sense that the pool of high-ability, high-income students is much smaller than might be expected. Through the Volume Projection System, they obtain a table which plots SAT-mathematical scores against estimated annual parental contribution to the cost of education for the pool of 1978 College-Bound Seniors interested in majoring in engineering or the physical sciences (see Table 1). With the table in hand, college personnel can analyze the numbers of students with specific SAT-mathematical scores and certain levels of estimated parental contribution and consider whether their test score requirements for future freshman classes should be modified.

The Volume Projection System can furnish the institution a similar table on College-Bound Seniors for 1985 (see Table 2). The system predicts the numbers of the 1985 College-Bound Seniors with specific characteristics on the basis of the proportion of students in the current population who have those characteristics and of data on the numbers of high school graduates from Projections of Education Statistics to 1985-86, published by the National Center for Education Statistics.

Each College Board regional office is a major resource for the institutions in the area it covers. Personnel at regional offices are available to visit institutions to discuss, interpret, and to make suggestions for using the institutional, state, regional and national data in the Volume Projection System. The offices located in the Northeast are identified below.

The College Board
Middle States Regional Office
65 East Elizabeth Avenue
Bethlehem, Pennsylvania 18018
(215) 691-5906

The College Board
New England Regional Office
470 Totten Pond Road
Waltham, Massachusetts 02154
(617) 890-9150

TABLE 1

SAT-MATHEMATICAL SCORE VS. ESTIMATED PARENTAL CONTRIBUTION

	$0	$1-$1000	$1001-$2000	$2001-$3000	$3001-$4000	$4001-$5000	$5001-$6000	$6001-$7000	$7001-$8000	$8001-$9000	OVER $9000	TOTAL
760-800	103	620	620	310	206	413	206	0	0	103	206	2787
710-750	206	1137	723	620	310	103	517	0	103	310	413	4442
660-700	310	3102	1551	723	517	930	517	0	103	517	1137	9407
610-650	930	3722	3205	1861	1344	723	413	0	103	206	827	13334
560-600	1137	3826	3102	1240	930	1447	517	0	0	1034	723	13956
510-550	1654	4860	2171	2378	1137	413	517	206	310	723	1551	15920
460-500	1137	4032	1861	930	413	620	206	103	103	310	723	10438
410-450	1137	3929	1344	517	620	517	310	0	0	206	103	8683
360-400	930	2068	1034	103	413	413	413	0	0	103	103	5580
310-350	930	2378	310	103	206	0	206	0	103	103	103	4442
260-300	930	413	103	103	103	103	0	0	0	0	0	1755
200-250	103	103	0	103	0	0	0	0	0	0	0	309
TOTAL	9507	30190	16024	8991	6199	5682	3822	309	825	3615	5889	91053

TABLE 2

SAT-MATHEMATICAL SCORE VS. ESTIMATED PARENTAL CONTRIBUTION

	$0	$1-$1000	$1001-$2000	$2001-$3000	$3001-$4000	$4001-$5000	$5001-$6000	$6001-$7000	$7001-$8000	$8001-$9000	OVER $9000	TOTAL
760-800	87	527	527	263	175	351	175	0	0	87	175	2367
710-750	175	967	615	527	263	87	439	0	87	263	351	3774
660-700	263	2637	1318	615	439	791	439	0	87	439	967	7995
610-650	791	3165	2725	1582	1143	615	351	0	87	175	703	11337
560-600	967	3253	2637	1055	791	1230	439	0	0	879	615	11866
510-550	1406	4132	1846	2022	967	351	439	175	263	615	1318	13534
460-500	967	3429	1582	791	351	527	175	87	87	263	615	8874
410-450	967	3341	1143	439	527	439	263	0	0	175	87	7381
360-400	791	1758	879	87	351	351	351	0	0	87	87	4742
310-350	791	2022	263	87	175	0	175	0	87	87	87	3774
260-300	791	351	87	87	87	87	0	0	0	0	0	1490
200-250	87	87	0	87	0	0	0	0	0	0	0	261
TOTAL	8083	25669	13622	7642	5269	4829	3246	262	698	3070	5005	77395

APPENDIX A

ON-LINE VOLUME PROJECTION SYSTEM POOLS

As of October 1, 1978

Listed below are the student populations that are accessible through the computer terminals located in the College Board's regional offices.

Information from one or more of these populations may be appropriate to you or others at your institution for planning purposes as well as for participation in the Student Search Service.

ATP SUMMARY REPORTS

1975 College-Bound Seniors
1976 College-Bound Seniors
1977 College-Bound Seniors
1978 College-Bound Seniors

SEARCH SERVICE

(All pools are for 1977-78 Data)

Winter Search Pool
Winter Minority Pool
Winter Unreported Pool
Winter Frequently Reported Pool

First Spring Search Pool
First Spring Minority Pool
First Spring Unreported Pool
First Spring Frequently Reported Pool

Second Spring Search Pool
Second Spring Minority Pool

Summer Search Pool
Summer Minority Pool
Summer Unreported Pool

REGROOMING HORSES ALREADY IN THE STABLE:

A CASE STUDY OF THE USE OF A BASIC INFORMATION SYSTEM TO ASSIST IN NEW POLICY FORMULATION FOR CURRENT PROGRAMS --OR AT LEAST TRYING

William Lauroesch
Mary Quilling
Kenneth Songer
University of Massachusetts/Amherst

Among our confreres in the honorable profession of institutional research there are, we would hope, those who have at their command accurate, comprehensive control and management information systems; who serve under the banner of a university with a clearly articulated mission and the know-how to pursue it; who have appointments to a faculty that lives in harmony with all mankind; who cannot recall a single instance of the use of IR output for less than altruistic purposes. For them, we regret to say, this narrative holds no meaning. They simply won't believe it.

For lesser folk, there may be the grim consolation of knowing that things are tough elsewhere, or even the smug satisfaction of realizing that there are those who are just beginning to learn what wise men, like yourselves, have always known.

The School of Education on the Amherst campus of the University of Massachusetts did not get caught up in the expansionist movement of higher education until 1968. But when it joined, it joined big. In that year alone it doubled its faculty and quadrupled the number of graduate students. The next five years were ones of euphoric, iconoclastic, high-risk adventure.

Circa 1973 a combination of circumstances, including the drying up of the education market, precipitated a switch in battle cries from "Damn the torpedoes" to "Serve ye the Commonwealth from whence cometh thy sustenance." Undergraduate enrollments in Education, which had ranged at two thousand, fell back to fewer than five hundred. Graduate enrollment peaked at fifteen hundred, dipped, and then leveled off a little above eleven hundred. Having just won some kind of "oscar" for the excellence of its sixteen alternative programs in undergraduate, pre-service teacher education, the UMass School of Education suddenly found itself essentially a graduate school with an in-service mission.

The in-service mission figured, since it was reasoned that the only means the School would have in the forseeable future for impacting the quality of education for its constituency (Massachusetts) would be regrooming the horses already in the stable. Less audible but naggingly persistent was the voiced observation that pursuit of such a mission requires that some effort be devoted to regrooming the grooms.

By AY 1975-76 the in-service mission of the School was made highly conspicuous by involvement in the court-ordered pairing of universities and Boston high schools for the purpose of simultaneously integrating and upgrading the system. The UMass School of Education was paired with Boston English High, where an on-site staff development program was undertaken.

Already chafing from an earlier indictment for allegedly being a diploma mill with indifferent standards, the School faced another barrage fired from the University bastion of conventional wisdom, the Graduate School. Courses offered on-site in Boston were deemed to be inferior to those on campus. Moreover, the spirit of residence was being violated. Using the fact of employment in a Massachusetts school or college as a condition for preferential admission to graduate study was bound in the eyes of the Graduate School to erode standards.

Unable to respond substantively to such charges, the School replied in kind. There was, for instance, the adamant claim that standardized tests discriminated against older students. Nobody really knew (1) whether School of Education graduate students were indeed older, or (2) whether they fared less well on the Graduate Record Examination.

The School was on the defensive, so the governing body took action by forming a committee. The Office of Programmatic Research and Evaluation was born. It was a difficult birth.

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OPRE's authorized staffing provided for three faculty members and a research assistant. The Cabinet designated a woman associate professor as chairperson, and immediately one of the other members protested, pointing out that he was her senior in time in rank. He refused to serve.

Going operational was just as difficult. There were more than one thousand graduate students somewhere out there pursuing individualized programs. Nearly one-third of the students were so highly individualized that they declined to identify with any established administrative unit. Yet, to begin addressing the myriad issues of quality required an accurate and comprehensive graduate student data base. The existing data base--consisting of a hand-maintained card deck--was neither. Moreover, it was cumbersome and time-consuming to keep up. It required two plus days of secretarial time per week just to update. The only recourse was to go back to square one.

The undertaking to reconstruct the student information system provided three caveats:

1. Data gleaners are highly suspect, and everyone wants to know exactly how you are going to use information;
2. Nobody wants to pay for it; and
3. Anticipating everything you need to know to answer even the questions that haven't been thought up yet is a rather ambitious goal.

Soliciting the broadest possible input to a data needs survey, which involved extensive interviews with potential users, and seeking Cabinet[1] approval of the final data element list helped to reduce suspicion. By diligently eliminating all data elements already obtainable from an interactive system within the University, the data needs--and consequently the cost estimate--were greatly reduced. The Graduate School registrar's generosity in permitting OPRE to piggy-back on his committee file further reduced the cost. Setting up a tele-processing unit at the School both reduced updating to a fraction of the time taken before and made up-to-date information on individual students readily available. Report printouts in three alphabetical formats (by School, by Division, by programmatic concentration) are circulated each semester.

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[1] The Cabinet is the executive body for School governance. Mentioned elsewhere are Divisions, which are the academic administrative units of the School. Since departments are an anathema, we find that matters are improved by calling our departments divisions.

There is no question of the legitimacy of the development of what is really no more than a control information system as an appropriate undertaking for an institutional research operation. Notwithstanding, one starts where one has to start. Without a data base there is no IR.

Further justification for having the institutional research unit monitor the control information system springs from the necessity for keeping the data base value free. In this particular instance it seemed even more important to be able to convince everyone that it was indeed value free. This was accomplished in part by members of OPRE refraining at first from answering questions that nobody ever asked.

When faculty start to ask questions that a data base can answer, they tend to ask a different kind of question than those generated within the typical IR unit. What crop up are questions immediately germane to faculty decision-making domains. They differ from the questions asked by individuals with managerial responsibilities within the school, and school questions differ from university questions. It is politic to channel considerable energy into faculty questions, for this is where IR establishes its credibility; it is politic to address management questions, for this is where IR gets its fiscal support.

Sometimes, however, data-free debate in a community of scholars reaches such ridiculous proportions that IR intervention on its own initiative is warranted. Such was the case in the GRE-older student controversy. It was simply a matter of massaging data already available in the university admissions file. Findings which were corroborated by ETS data revealed that the truth lay somewhere between the positions taken by the GRE advocates and detractors. Both at UMass and nation-wide GRE Verbal scores are sustained at approximately the same level across age groups, but GRE Quantitative scores show a decline with advancing age, as seen in Table I. Also, women tend to score lower than men on the Quantitative test, a fact which holds implications for affirmative action in admissions.

TABLE I

COMPARISON OF UMASS AND ETS ANALYSES OF THE INFLUENCE OF AGE AND SEX ON GRE SCORES

	Age	22 or Under		23 - 29		30 or Over	
	Sex	M	F	M	F	M	F
UMass*	N	4	1	62	107	102	97
	GRE-V	568	480	511	504	510	521
	GRE-Q	523	530	505	455	474	425
ETS**	N	1625	7155	5020	9371	3436	6136
	GRE-V	489	468	471	465	466	482
	GRE-Q	520	472	499	449	468	412

*Includes all graduate applicants accepted by the School of Education during the 1976 calendar year.

**Means scores of a nationwide sample of applicants in education, educational administration, educational guidance, and educational psychology.

The OPRE task did not end with reporting its findings to the warring factions and recommending to the Graduate School that it cease its practice of summing Verbal and Quantitative scores in computing one of its primary indices of student quality. One more step remained. Fortunately, one of the associates in OPRE was in a position to sponsor a successful motion in a major all-university committee that actually brought about action.

Less formal processes within the School of Education make it more difficult to translate IR information into concrete action. This circumstance brought into focus one of the major philosophical issues of institutional research. Just what is the extent of the IR unit's responsibility for the implementation of its findings and recommendations? OPRE's early position was that its functions are divorced from decisions and action. Yet, if admissions and curriculum are not modified in the light of OPRE's findings, the whole thing is kind of a waste.

One serendipitous spin-off of the GRE study was the finding that according to traditional measures of quality (i.e., GRE scores) applicants to the much-maligned off-campus graduate programs are better qualified than applicants to on-campus programs. Such serendipity is a mixed blessing. To be sure, it has justified continued expansion of services to a well-qualified clientele, but this clarion note of relative quality of the input may have drawn attention away from the real difficulty, which in this instance appears to be the middle category of the Input-Operations-Output evaluation model (Astin and Panos, 1971). The ostensible difference between on-campus and off-campus programs lies in Operations. Research findings on a host of programs outside the academic mainstream, including alternatives and continuing higher education (Murray, 1978; Quilling, 1976, 1977), place the nadir of the quality curve at Operations.

The thesis here is that an IR unit is in constant danger of rendering a disservice. Unbridled celebration of the quality of Input smacks of an "eagle egg"[2] mentality, as well as leading to a complacency that derives from having driven the wolves away from the door. The disclosure of information that served in the short run as an instrument of survival may in the long run undermine efforts to improve program quality. If this does happen, then IR has indeed rendered a disservice.

While an inordinate amount of OPRE's energy has been spent on survival questions, there has been at least an opportunity to gather data that will answer other questions that are not yet burning out of control. Becoming something more than an instrument of crisis intervention will further justify the existence of an IR unit within a subdivision of the university. The academic issues that preoccupy a smaller unit are easily lost in the multitude of longer range and larger institutional concerns. Local concerns, when communicated upward, at best suffer benign neglect; at worst, hostility. There is little university interest in and no sympathy with the concerns of a dissident academic unit that has a long-standing reputation for working at cross purposes with the larger community.

The UMass School of Education for a long time studiously avoided the accumulation of any data that would make it possible to pin it down. That practice was predicated on the belief that they won't hang you without the evidence, which just doesn't happen to hold true for universities. The School depended on its ideology and momentum to overwhelm the opposition. Such weaponry is vulnerable to its own kind.

The lip service given by the larger university community to the cause of outreach is in no way accompanied by policy or regulatory alterations to facilitate pursuit of the new mission. Conventional wisdom adamantly maintains that

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[2] One of the half-baked homilies floating around OPRE is the Eagle Egg Theory, which holds that if you gather only eagle eggs, almost anything with a warm behind can sit on them, and you will still hatch eagles.

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alteration is ipso facto an assault on standards. If any unit of the university hopes to make a dent in that wisdom, then data, not ideology, is going to be the tool. As the IR arm of a subversive unit of the University of Massachusetts, the Office of Program Research and Evaluation is beginning to make a dent.

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THE COLLABORATION OF PUBLIC RELATIONS AND INSTITUTIONAL RESEARCH: THE MASSACHUSETTS STATE COLLEGE SYSTEM'S EXPERIENCE

INTRODUCTION

Jean Paul Boucher
Massachusetts State College System

Institutions of higher education usually have an office of public relations (PR) or information services and an office of institutional research (IR). It is not unusual for PR and IR to collaborate and for IR to contribute to PR efforts.

The objective of this paper is to explore some areas of collaboration between PR and IR in higher education. This exploration will draw on the experience of the Massachusetts State Colleges and especially on the attempt to combine the characteristics of an annual IR fact book and a PR annual report. With limited financial and human resources, most institutions of higher education should benefit from a productive collaboration of PR and IR.

Two and a half years ago, the Chancellor of the Massachusetts State College System developed an extensive and comprehensive questionnaire for each of the ten State Colleges to complete. The questionnaire included questions on facilities, finances, students, faculty, significant events and achievements at the College and institutional plans, needs and priorities. The purpose of the "President's Annual Report," as it was called, was to collect in one document all relevant data and information on each State College. It was meant to replace a more limited annual report previously prepared by each College.

In response to this first questionnaire each State College produced a relatively large and unattractive document. During the following year there were separate meetings with PR and IR personnel, and a slightly revised questionnaire was developed. In the second and third annual questionnaires, the Presidents were encouraged to produce an attractive document which might be an expanded version of a public relations document. In this three-year period, the President's Annual Reports were produced by PR staff at some Colleges and by

IR staff at other Colleges.

This paper provides an opportunity for three participants in the situation described above to reflect upon their experience and to share with colleagues the insights gained about the possible relationship between PR and IR.

The analysis of the collaboration of PR and IR must begin with a clear understanding of the nature of these two staff functions. Beginning with the more familiar of the two, we turn to the statement prepared by Joe L. Saupe and James R. Montgomery entitled, "The Nature and Role of Institutional Research--Memo to a College or University." After indicating the variety of possible definitions for IR, Saupe and Montgomery state "that institutional research consists of data collection, analyses, reporting, and related staff work designed to facilitate operations and decision-making within institutions of higher education." Although this definition can be applied to most staff work, it seems appropriate because IR is pre-eminently a staff function examining all aspects of institutional operation with virtually no line responsibilities. To some extent, most IR overlaps with other staff and line officers.

A definition of public relations is provided by Raymond Simon in his book entitled, Public Relations: Concepts and Practices. According to Simon, "public relations is the management function which evaluates public attitudes, identifies the policies and procedures of an organization with the public interest, and executes a program of action (and communication) to earn public understanding and acceptance."

Comparing the two definitions provided above reveals some common elements. Both IR and PR are involved in evaluation or analysis and communication. It would not be unusual for IR to evaluate public attitudes, although it generally is involved in studying the institution itself. PR goes beyond IR in executing a program of action and communication to earn public understanding and acceptance, although IR might contribute analysis and reports useful to such an action program.

In the Massachusetts State Colleges and at many other institutions of higher education, IR and PR have limited staffs and perform a wide variety of duties. Among the ten State Colleges, only three have full-time Directors of Institutional Research, with only two of these having secretarial assistance. At the other seven institutions, IR is part of the responsibility of the Registrar, Associate Registrar or Director of Planning and Development.

No State College has a PR Office in the sense delineated by Simon. Most State Colleges have full-time Directors of Information Services whose responsibilities are actually publicity which, according to Simon, "involves providing information, news and feature material about an organization or person" and is, thus, far less than public relations. With only secretarial assistance, the Directors of Information Services have responsibilities in one or more of the following areas besides publicity: community relations, community services, publications, institutional newsletter, alumni affairs, special events and development.

With a small PR Office and a small IR Office, it is possible that both staffs will be too busy to collaborate with each other. However, this paper indicates several areas of desirable and productive collaboration.

As my colleagues here realize, an IR fact book contains summary data covering several years on various aspects of institutional operations, usually without extensive analyses. Periodically updated, the fact book is generally distributed to key executives in the organization. Occasionally, an abbreviated version is distributed to faculty, governing boards, legislators, alumni, community leaders, and other interested parties. The purpose of a fact book is ostensibly to facilitate operations and decision-making by providing to decision-makers ready access to institutional data, multi-year comparisons and trends. A fact book may be distributed by IR and PR as an information item or as an attempt to convey the impression of a competent IR capability ready to share information and data. The disadvantages of fact books are 1) that they are often not up-to-date; 2) that decision-makers seldom take the time to use them, preferring to contact IR directly; 3) that they often contain data that can be misconstrued, misunderstood or misused, and 4) that decision-makers usually want and need to have data analyzed and incorporated in a prose report. A PR Office may help to make a fact book more attractive or understandable; they may have the staff to produce the fact book for IR. At this time, only one of the ten State Colleges produces a fact book apart from the President's Annual Report.

The institutional annual report is generally a colorful document, including brief reports on the major activities of the institution, in addition to financial tables and charts. The annual report is customarily produced by the PR Office and is usually distributed to key executives, governing boards, legislators, community leaders, faculty, alumni and the media.

The annual report may be part of the action and communication program of a true public relations effort, in which case it would be part of a careful plan to change the attitude of a given audience, or "earn public understanding and acceptance." According to Simon, this change would be the subject of careful measurement by survey research. In higher education, it is more likely that the annual report is part of a publicity effort that seeks to provide information and create a favorable impression with a given audience. The annual report is a relatively expensive document whose purpose should be carefully attuned to its audience.

If it is correct that the fact book and the annual report have roughly the same audience, then it is worthwhile to explore the utility of a combination of the two documents. Is such a combination cost-effective? Is such a combination more trouble than it is worth? Does the actual and potential collaboration of IR and PR have hierarchical consequences?

This past September marked the submission of the third set of Annual Reports from the State Colleges. Most of the Reports were attractive documents which should convey a positive and professional image. The Annual Reports are less than fact books because they lack multi-year data. They are more comprehensive than fact books in providing prose exposition of significant events and achievements at the College and institutional plans, needs and priorities. The Annual Reports are actually too comprehensive anu too detailed for a traditional annual report, although some are distributed as a traditional annual report. Although most Colleges prepare a single document in this process, one College produced an attractive annual report with a separate insert for the statistical data, while another College produced two separate documents, one for PR and one for IR. The documents are produced and often printed by College staff. Although they involve considerable staff time, the non-staff costs are less than $1000. The number of documents generated ranges from 50 to 250.

My colleagues will explore the relationship of IR and PR at their campuses; the collaboration of IR and PR in combining a fact book and an annual report; the success or failure of this combination; the factors inhibiting cooperation; and the advantages and disadvantages of collaboration.

AN ANNUAL REPORT AS A PR DOCUMENT - THE CASE AT WORCESTER STATE COLLEGE

Loren Gould
Worcester State College

An Annual Report, in order to be used as a PR document, must be in presentable format and must be distributed to a suitable audience. Worcester State has had problems on both counts. Our Annual Report for fiscal year 1976 was a 64-page, spiral-bound publication printed at the campus copy center in an edition of 100 copies. Copies were sent to the Central Office, to the Alumni Board, to the Worcester Consortium for Higher Education, to selected campus administrators and to local legislators. The report was set up in a question and answer format without any linking paragraphs of expository material and contained many misspellings, transpositions and other evidence of poor editing. The Office of Institutional Research, after supplying much of the raw data, was not involved in the production nor in the distribution of the document. Staff had to appropriate a copy in order to have one for filing purposes.

The Annual Report for fiscal 1977 showed a decline in quality from the preceding year. There was a 44-page listing of data in question and answer format similar to the previous year, followed by over 150 pages of unedited and unnumbered Faculty Information Forms. As a result, both blank forms and completed forms were included. Some were typed, but most were handwritten and difficult to read. The statistics part of the report was more pleasingly arranged than in fiscal 1976, but editing was still limited as evidenced by the report on the placement of graduates which still contained the request, "Please return the completed questionnaire before March 25, 1977." For this Annual Report only 50 copies were printed with the plan of limiting distribution to a minimum, since the deficiencies of the report were evident to all. Copies were sent to the Central Office, to the Alumni Board (which did not distribute the document), and to a limited number of campus administrators, including the Director of Institutional Research.

The Annual Report for fiscal 1978 was produced off campus for $485 in an edition of 250 copies. About 180 man hours were expended by the Offices of Information Services and Institutional Research, with one-third of the time supplied by Institutional Research. Distribution was similar to the first year, since this was a much more presentable report. This year, with the Director of Information Services having a longer time frame for the project, the end result was markedly improved.

Because the Director of Institutional Research has no personnel other than himself, the Director has little time to commit to greater involvement with the Annual Report. However, considering the potential value of such reports for the purpose of improved public relations and public information, it seems that a commitment should be made, at least, to check accuracy and to avoid careless errors such as the inclusion of the statement quoted earlier from the placement survey. In these days of declining enrollments, no potential source of improved public relations can afford to be neglected, particularly one that is mandated by the Board of Trustees.

It might be more productive to have a PR annual report separate from the statistical data comprising the bulk of the State College Annual Report. But, until we have fully developed a consistent method of producing the statistical data, we will hold in abeyance the development of a separate PR annual report as some of the other Massachusetts State Colleges have already produced.

THE COLLABORATION OF PR AND IR AT WESTFIELD STATE COLLEGE

Susan Burkett
Westfield State College

Westfield State College is fortunate to have personnel assigned full time to both institutional reserach and public relations. This is not the case in most other Massachusetts State Colleges, nor in many other institutions with a student enrollment under 3,000. Both Offices are five years old and report directly to the President. Though unwritten, the missions of both Offices reflect the desire for accurate, relevant and timely information. It is in the audience for this information that the differences between the Offices are most clear.

In addition to the usual publications tasks assigned a public relations office (catalogues, viewbooks, etc.), the Westfield State College PR Office is responsible for publicity, relations with the media, and a weekly college newsletter which is a college house-organ, detailing activities, promotions, and other campus news. The IR Office basically serves as staff to senior administrators, particularly the President, and is responsible for the collection, analysis, and dissemination of information on the internal operation of the College, the student body, the faculty, curriculum and selected budgetary matters. Thus, the basic audience for PR is the community, both internal and external, and the basic audience for IR is college administrators, especially senior staff.

Several times during the course of an academic year the two Offices are required to work together for the production of various informational pieces; the most notable of these is the President's Annual Report to the Board of Trustees. The challenge has been to blend the publicity aspects of the Report with the data element requirements. This has been met in various ways in different years.

Although the first Annual Report was produced by IR without the assistance of PR, in the two subsequent versions the IR staff has prepared raw statistical data for the PR staff to include in the finished document. Such a process has resulted in some problems, however. The conversion of statistical data to prose has not always been accurate. Misunderstandings, misinterpretations, and misrepresentations have resulted, largely because analysis of statistical information is not a usual function of the PR staff. In fact, PR staff members appear uncomfortable with statistical information and would prefer to avoid it, if possible. As a result, the process of completing the Annual Report requires writing and rewriting, and takes considerably longer than it might if only one office were involved.

At Westfield, the end product of the process has evolved into an Annual Report that is in part a typical "best-face-forward" publication, and in part a statistically-oriented Fact Book. The Report gives information about Westfield for the previous year and is most useful as a description of that particular year.

Publication of the College Fact Book each October is an example of the IR staff performing both an IR and a PR function. The on-campus audience for the Fact Book is rather large: all senior and mid-level administrators, department chairmen, class presidents, other student government leaders and the library. Senior administrators, particularly the Preisdent, seem to use the Fact Book with some regularity, as do a few department chairpersons. Many of those receiving the publication peruse it when it arrives, but never look at it again.

Each year, approximately twenty-five extra Fact Books are published for distribution to legislators, key media personnel, selected campus visitors, and senior Massachusetts State College System staff. The distribution of copies is determined by the President. IR staff believe that most of this audience also glance through the book once, and then file it.

One may question, then, the utility of printing a large number of copies that are not used regularly. The utility lies, in the opinion of Westfield IR staff, in the public relations value of the document. The willingness to "open the books" to anyone who is interested has a tremendous PR impact. Government officials, who probably never looked at the Fact Book once they have left the campus, have remarked to the President that they wish such data summaries were available from other colleges. IR staff have been told by department chairmen that it is useful to see the data that is used for many administrative decisions. By making data easily available through the Fact Book, IR works to build the positive image of the College -- clearly a PR function.

As the Fact Book example illustrates, there are opportunities for IR to play a PR function, while the Annual Report example illustrates how IR and PR can work constructively together. Many factors influence the degree to which the two Offices can collaborate effectively; three are particularly important at Westfield State College.

Deadline constraints can impede effective collaboration. The only effective remedy for this is planning: IR staff should notify PR staff that an interesting study is being done, which may warrant a news story even before the study is completed. Likewise, PR should alert IR to potential factual needs sufficiently in advance of publication deadlines.

Administrative arrangements can play a major role in the ability of IR and PR staffs to cooperate. At Westfield, the fact that both Offices report to the President should result in communication and coordination between the two staffs.

Perhaps the set of factors most clearly affecting collaboration between IR and PR Offices are the different abilities and interests of the two staffs. Data that seems important to IR staff members may appear dull and uninteresting to PR staff. On the other hands, IR may regard items designated as newsworthy by PR to be superficial. Only a long-term commitment by both staffs to open communication and to the efforts to understand the abilities and interests of the other can overcome such initial differences.

CONCLUSION

The Massachusetts State Colleges have attempted to convert a comprehensive annual survey of institutional operations into a useful fact book and an attractive institutional annual report. Determining the success or failure of this effort depends in part on the judgment of the proper distribution of these two documents. If an annual report should be distributed widely and if a fact book should be distributed only to a few key executives, then the combination may be unproductive. If both documents should be distributed to a limited common audience or to a numerous common audience, then the combination may be worthwhile. At the very least, the comprehensive data gathering presently required in the System for the President's Annual Report certainly provides a sound preparation for a brief, attractive institutional annual report.

The analysis provided above indicates a number of areas in which public relations and institutional research can cooperate and work together. This collaboration has been somewhat successful in the Massachusetts State College System.

It is clear that the extent of collaboration between these two offices depends upon the willingness to cooperate, the interests and abilities of the two staffs, and adequate planning and communication.

STATE COLLEGE CENTRAL OFFICES - A PROBLEM IN COMMUNICATIONS

Loren Gould
Worchester State College

The Massachusetts State College System consists of ten colleges with a coordinating office located in Boston through which the single Board of Trustees for all ten colleges operates. This office has grown from a Director and two secretaries to an office with a Chancellor, four Vice-Chancellors, and a number of subordinate administrators with related secretarial help. With this growth in size came a growth in the demand for data to substantiate the annual system budget request. Beginning in fiscal 1975, the Central Office has been gathering fiscal data from the ten state colleges making up the system. After verification by each college, following rather rigid instructions, the data is presented in printout form where readers may compare unit costs of similarly titled departments at different institutions without any explanations to account for differences. This includes data for the two rather specialized colleges of the Massachusetts Maritime Academy and the Massachusetts College of Art. All of us who work with statistics know how many figures are taken literally by those sending them.

The first table summarizes the total maintenance budget of Worcester State College for all college disciplines and departments for fiscal year 1978. Salaries of chairpersons at Worcester State are prorated as spending one-quarter of their time in administrative duties and three-quarters in teaching. Therefore 3.46% of the total salary budget of the college supports the administrative activities of the 26 department chairpersons. Then each rank is listed along with the total dollar cost and percent of the total salary cost. Following this is a listing of the support staff such as lab instructors, lab technicians and secretaries. Finally there is a listing of expenses classified under supplies, equipment, travel, repairs, telephone and postage, fuel and other. This then accounts for all costs of the maintenance budget for fiscal 1978. It displays the total student credit hours for the college, 89,299; the unit cost, $65.72; the FTE faculty, 188; and the student credit hours per FTE faculty, 474.99. Total student credit hours are developed by multiplying the number of students in each individual course by the number of credit hours represented by the course, summarizing for each department, and then for the college as a whole. The unit cost is obtained by dividing the total maintenance budget, $5,869,099, by the total student credit hours, 89,299, yielding $65.72, a figure of rather suspect value. The student credit hours per FTE faculty is obtained by dividing the total student credit hours, 89,299, by the FTE faculty, 188, yielding 474.99.

Another breakout of data is shown in the second table, the All Non-Instructional Departments listing, which gives salary rates, costs and percent of organizational budget for areas of the college not directly involved in instruction. This accounts for 45.04% of the fiscal 1978 budget. Included are administrators and most non-professionals except those few involved directly in instruction.

The next table, All Academic Disciplines, shows the breakout of all the academic discipines with faculty, staff and expenses related directly to instruction pulled out. This accounts for the remaining 55% of the total organizational budget. The unit cost shown is $36.13, a figure developed from the totals of all 26 departments so that this unit cost has a logical relationship to the departmental unit costs, unlike the $65.72 unit cost shown in the first table. Departments with a unit cost less than $36.13 will be seen as costing less than the college average, while departments with unit costs above this figure will be seen as being more expensive. This suggest possible conflicts between departments since there is no attempt to explain any differences in unit costs. Those departments costing more than the average will be put on the defensive in trying to justify why their departments cost more.

Other breakouts of data supplied by the Central Office include the costs of running the plant as shown on the next table. All of the college's fuel account is charged to Plant plus all the monies in other line items that cannot be charged to specific academic purposes. Any repairs to the college as a whole, such as roofing repairs, are charged here. If the repairs can be charged to a specific department, they are. Salary expenses shown cover two professionals, the Superintendent of Buildings and Grounds and the Director of Planing and Development, one secretary, and 33 non-professionals including custodial, maintenance and skilled craft workers. The Plant breakout accounts for 16.25% of the total organizational budget.

The Learning Resources Center, shown in the next table, is also broken out separately, accounting for 7.92% of the total budget with 33 employees and all expenses that relate to the library and media categories but that are not related to the Media department specifically. The professionals shown are primarily librarians who are classified with the faculty by terms of the union contract but who are carried under Library for cost purposes by definition of the Central Office.

The computer costs, only 0.91% of the total budget, are broken out in the next table. We are serviced by a central computer in Boston with one professional and two clerical workers on campus along with associated costs, primarily software and telephone costs. We are required to use the state computer and rapid personnel changes at the center and at the college, plus the purchase of a second computer of a different type, requiring cross-over programs to be developed have created difficulties not yet fully resolved.

Student Services account for 6.94% of the regular maintenance budget. Fees such as Student Activity, Athletic, or Campus Center, are not included in this format since they are not part of the regular maintenance budget. Their omission is another example of a weakness in the present costing system since over $300,000 is involved in just these three trust funds at Worcester State. Each college has its own fees differing in amount and number and, of course, differing in income depending upon the size of the student body. The table shows 24-1/3 regular employees while our several trust fund employees are not shown. Note that expenses are relatively low since most such expenses are covered by the various fees and related trust funds.

Next, the administration of the college is broken out into two major classifications, Academic and General. Academic Administration accounts for 4.76% of the total budget with 12 employees and $27,991 expenses while General Administration costs 8.23% of the total budget with 25-1/2 staff working and $37,053 worth of expenses.

As a sample of the 26 departmental budgets, the biology department is shown on the final table. This department, with 11 faculty members working full-time, accounts for 3.95% of the total organizational budget of the college. This department also accounts for 6.14% of the total student credit hours and has a unit cost of $41.21 making it 14% more expensive than the average unit cost of $36.13 for the college as a whole. The biology department has a student-faculty ration of 16:1, the same as the ratio the college as a whole is funded for. Student-faculty ratios are developed by dividing the student credit hours per FTE faculty, in this case 498.36, by 30, the average student semester hour load for a year. There is one professional lab instructor attached to the department, one non-professional technician, and one-quarter secretary.

At the time this paper was written, we had not yet received the figures from Central Office relative to all ten state colleges but during the preceding three fiscal years the Worcester State biology department has cost more than its namesakes in the system by 17% in fiscal 1975, 7% in fiscal 1976, and 11% in fiscal 1977.

We have assigned six and a half secretaries to the various departments. Each secretary is assigned four departments with one secretary assigned only two. The departments assigned may or may not use the secretary, that is their option. Faculty use of secretaries in clerical pools is highly erratic so no attempt has been made to have the secretaries keep logs as to how much time is spent working for specific departments. As a result, we arbitrarily assign one-quarter of an average secretary's salary to each department. Some departments undoubtedly use their secretary for more than their allotted one-quarter time while others do not use their secretaries for the full amount of time, if at all. Faculty use is rather periodic with high points near the end of the semesters and low points in summers and vacations. Whenever the secretaries are not doing faculty work they revert to administrative jobs since those are unending.

We have also found it impractical to attempt to maintain a log on telephone usage by departments. Our switchboard is overloaded with incoming and outgoing calls as is and it would require hiring a third telephone operator to serve as a monitor to log department calls. We are having considerable difficulty in keeping records of long-distance calls at the present time. This is a management problem that cannot be resolved at present considering our fiscal situation. Therefore telephone costs are prorated on a formula basis depending upon the size of the department with a base amount for all departments plus an additional amount based on faculty numbers and enrolled students. Likewise, postage is prorated since we cannot afford to log out individual pieces of mail and our mail clerk is a janitor serving as mail clerk since we have no such position in our table of organization.

Supplies are prorated in a similar manner while equipment can be more specifically assigned since equipment orders tend to be specific to a particular department. Travel is prorated by a formula too, but this can be recovered reasonably accurately from our records given the available clerk with time to recover the information.

Such information is interesting but it poses a threat if used as it stands with no explanations. If the Legislature were to see figures of this sort, they might very well compare the unit cost of a specific department at Worcester State with its titular counterparts at the other state colleges. If the biology department at Worcester has a unit cost of $41.21 while other state college biology departments were all at or below unit costs of $34.37, there might be a move to phase out Worcester's biology department, even though it might be the best quality department in the system.

In the real world, Worcester's biology department might represent a well established department with primarily full professors with many year's experience while other biology departments with lower unit costs might represent departments consisting of instructors and assistant professors recently hired and as yet unproven. In either case, there is no quality factor evident as to which department may be doing a superior job nor of what that job should be. Is teaching the main goal of the department, or is research the chief component? Is a balance between the two sought, and what is the relationship of the department to community involvement? Another problem ignored by the methodology adopted in gathering the data the printouts are based on, is the differences between semesters. Many departments have considerable difference in their activities between semesters but the data used is for fall semester and then simply doubled with no weighting allowed.

Nowhere is there any attempt in the printout to explain the methods used in developing the figures. Most of the courses in our physical education

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departments are one-credit courses while the majority of the other courses offered by the college are three-credit courses. Yet the physical education department's unit costs are listed along with all others with no explanatory note as to the different basis to the figures. The education departments have a good portion of their time tied up with the supervision of practice teachers and with considerable variation between semesters in other course offerings. Nevertheless, they are treated the same as all other departments at all of the state colleges.

Another unexplored area is the consistency or lack thereof of answers to the budget information request. No meeting has been held of those replying to the questionnaire to clarify uniformity of answers. The coordinators of institutional research have met in the past to develop uniform methods of answering HEGIS questionnaires to the benefit of the data supplied, but the fiscal officers of the state colleges have not met with those completing the cost study on a statewide basis to discuss problems of interpretation and methods of prorating monies.

Another example is in regard to expenses such as supplies, equipment, travel, repairs, telephone and postage. Such items are requested by individual departments but for the most part detailed record of such line items are not kept as to which department spent how much for what. In theory the college would gain by keeping such records, but in a time of decreasing fiscal support we cannot afford the additional clerical personnel that would be necessary to maintain such detailed records. For several years there has been talk of computerizing the line item accounts, but so far this has not occurred due to a variety of problems both on campus and at the computer center.

Individual departments hold the Office of Institutional Research responsible for such data even after copies of the request forms have been given to them so they can see the constraints imposed by the data gathering system. The Central Office itself has been quite unresponsive to suggested modifications and merely insists that the college assume the responsibility of supplying the data as requested. At least one department head has written on behalf of his department because of the disparity between fall and spring semesters, but to no avail. So far as I know, the Worcester State Office of Institutional Research is the only one in the system that reports the existence of this data to the faculty. Several reports are generated each year based on the data supplied by the Central Office. The report sent to department chairpersons gives the unit cost figure for the particular department, the unit cost for all such titled departments in the state system, and the percentage difference that the Worcester State unit cost is from the state average. The student-faculty ratio for the Worcester department and for the state system are also given. Both unit costs and student-faculty ratio are defined as to how they are derived, and the warning that such figures exist and may be used is stated. The Office of Institutional Research for use of the administration of the college issues four other summaries of the data. One displays the cost per student credit hour by department with data for all the years available, showing Worcester, the state sytem and the percentage difference between the two. Another report shows the student-faculty ratios of the Worcester State departments and those of the state system for the several years for which data has been developed. Still another report is for inter-departmental cost comparison in which the variation of each Worcester department from the Worcester average unit cost is shown. Finally, there is a report displaying the percentage of total college budget for the major subdivisions as defined by the Central Office. This is given for the four years of the study and included the system figures as well as the ones for Worcester State. Caveats are added to these reports but so far they have not been needed.

The report to the department chairpersons has the following statement:

> The Office of Institutional Research believes that you should be aware that such data is being gathered and has the potential to be used in decision making by the Central Office. Such figures may also be used at the campus level for decision making although up to the present they have not been so used.

Summary and Solutions

Each college needs to develop supplementary data to explain variations within each college and variations between colleges. Data had been supplied for fiscal 1975, 1976, and 1977 for the state system as a whole so that each college can compare their departments with similarly named ones at the other ten state colleges. This is another weakness of this unit cost scheme since departments are compared if they have the same name, regardless of what the concentration within the departments may be. Thus, they may be comparable in areas of specialization or they may not, but to the person reading the data they are apparently comparable.

Each college should prepare a statement about each department detailing what are the activities of the department, what are the abilities and expertise of each faculty member, what activities besides teaching are recognized by the local administration as fulfilling contractual obligations and what are the future plans of the department. Some of our professors are working half time at other college-approved activities, yet their full salaries are charged back to their departments since there is no other category, other than department chairperson, to charge them to. For example, one foreign language professor works half time at the Center for International Education located near another state campus and operated with the approval of our Board of Trustees to facilitate the exchange of both students and faculty with colleges outside the United States. Another faculty member from the secondary education department works half time at our institute for Community Service which exists only because several faculty members are assigned part-time to it. This Institute has been instrumental in improving the image of Worcester State in the local community with its numerous grant programs in the public service area.

Our nursing program is listed among the other majors with no indications that it is funded on an 8:1 student-faculty ration rather than the 16:1 ratio of the other departments of the college. Also, our nursing program is a rather strange hybrid in that we do not have a four-year program but supply the necessary courses for RN's to complete a bachelor's degree program and also offer a one-year freshman level program for nurses in the schools of nursing at several local hospitals. There is no attempt to indicate these special circumstances regarding nursing, the unit cost is just listed with all the rest.

Hopefully, since copies of this paper will reach our Central Office, a meeting involving representatives of all ten state colleges will result in the near future so that the problems outlined in this paper will be openly discussed and solutions proposed that will allow the continued gathering of such data but with safeguards to protect the system and its component parts from being jeopardized by the existence of such data.

ORGANIZATIONAL BUDGET

ALL COLLEGE DISCIPLINES AND DEPARTMENTS

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
CHAIRMAN	17,048	6.50	3.46	110,809	1.89
FACULTY (BY RANK)					
PROFESSOR	19,864	35.50	18.88	705,176	12.02
ASSOCIATE	16,656	44.50	23.67	741,183	12.63
ASSISTANT-PROFESSOR	14,286	92.50	49.20	1,321,457	22.52
INSTRUCTOR	11,970	9.00	4.79	107,729	1.84
(*) FACULTY	15,885	188.00	100.00	2,986,354	50.90
STAFF (BY CATEGORY)					
LAB INSTR. AND PROFESSIONAL	23,183	49.33	33.48	1,143,637	19.49
SECRETARY	9,504	50.00	33.94	475,179	8.10
TECHNICAL	10,552	7.00	4.75	73,861	1.26
OTHER PERSONNEL	10,044	41.00	27.83	411,818	7.02
(*) STAFF TOTALS	14,284	147.33	100.00	2,104,495	35.87
EXPENSES (BY TYPE)					
SUPPLIES				90,000	1.53
EQUIPMENT				31,000	.53
TRAVEL				13,000	.22
REPAIRS				80,000	1.36
TELEPHONE AND POSTAGE				80,000	1.36
FUEL				429,000	7.29
OTHER EXPENSES				55,250	.94
(*) ADDITIONAL EXPENSE TOTALS				778,250	13.23
*** TOTALS ***		335.33		5,869,099	100.00

COSTS BY COURSE LEVEL	COST	PER-CENT	TOTAL STUDENT CREDIT HOURS	PER-CENT	PERCENT TOT HRS	UNIT COST	FTE FACULTY	PER-CENT	STD CREDIT PER FTE FACULTY
(*) COURSE LEVEL TOTALS	5,869,099	100.00	89,299	100.00	100.00	65.72	188.00	100.00	474.99

ORGANIZATIONAL BUDGET — ALL NON-INSTRUCTIONAL DEPARTMENTS

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
STAFF (BY CATEGORY)					
PROFESSIONAL	24,221	45.33	33.87	1,097,946	18.71
SECRETARY	9,662	43.50	32.50	420,297	7.16
TECHNICIAN	10,548	4.00	2.99	42,193	.72
OTHER PERSONNEL	10,044	41.00	30.64	411,816	7.02
(*) STAFF TOTALS	14,737	133.83	100.00	1,972,248	33.61
EXPENSES (BY TYPE)					
SUPPLIES				32,000	.55
EQUIPMENT				21,700	.37
TRAVEL				6,900	.11
REPAIRS				80,000	1.36
TELEPHONE AND POSTAGE				48,000	.82
FUEL				429,000	7.31
OTHER EXPENSES				53,250	.91
(*) ADDITIONAL EXPENSE TOTALS		- - - - -		670,450	11.43
TOTALS		133.83		2,642,698	45.04

ORGANIZATIONAL BUDGET — ALL ACADEMIC DISCIPLINES

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
CHAIRMAN	17,048	6.50	3.46	110,809	1.89
FACULTY (BY RANK)					
PROFESSOR	19,864	35.50	18.88	705,176	12.02
ASSOCIATE PROFESSOR	16,656	44.50	23.67	741,183	12.63
ASSISTANT-PROFESSOR	14,286	92.50	49.20	1,321,457	22.52
INSTRUCTOR	11,970	9.00	4.79	107,729	1.84
(*) FACULTY TOTALS	15,885	188.00	100.00	2,986,354	50.90
STAFF (BY CATEGORY)					
LAB INSTRUCTOR	11,423	4.00	29.63	45,693	.78
SECRETARY	8,444	6.50	48.15	54,886	.94
TECHNICIAN	10,556	3.00	22.22	31,668	.54
OTHER PERSONNEL					
(*) STAFF TOTALS	9,796	13.50	100.00	132,247	2.26
EXPENSES (BY TYPE)					
SUPPLIES				58,000	.99
EQUIPMENT				9,300	.16
TRAVEL				6,500	.11
REPAIRS					
TELEPHONE AND POSTAGE				32,000	.55
OTHER EXPENSES				2,000	.03
(*) ADDITIONAL EXPENSE TOTALS				107,800	1.84
*** TOTALS ***		201.50		3,226,401	55.00

COSTS BY COURSE LEVEL	PER-CENT	TOTAL STUDENT CREDIT HOURS	PER-CENT	PERCENT TOT HRS	UNIT COST	FTE FACULTY	PER-CENT	STD CREDIT PER FTE FACULTY
(*) COURSE LEVEL TOTALS	100.00	89,299	100.00	100.00	36.13	188.00	100.00	474.99

ORGANIZATION BUDGET — PLANT

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
STAFF (BY CATEGORY)					
PROFESSIONAL	27,941	2.00	5.56	55,881	.95
SECRETARY	10,696	1.00	2.78	10,696	.18
TECHNICIAN					
OTHER PERSONNEL	10,181	33.00	91.66	335,977	5.72
(*) STAFF TOTALS	11,182	36.00	100.00	402,554	6.85
EXPENSES - - (BY TYPE)					
SUPPLIES				7,360	.13
EQUIPMENT				8,572	.15
TRAVEL				1,137	.02
REPAIRS				73,216	1.25
TELEPHONE AND POSTAGE				1,460	.02
FUEL				429,000	7.31
OTHER EXPENSES				30,250	.52
(*) ADDITIONAL EXPENSE TOTALS				550,995	9.40
*** TOTALS ***		36.00		953,549	16.25

ORGANIZATIONAL BUDGET

LIBRARY

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
STAFF (BY CATEGORY)					
PROFESSIONAL	20,401	12.00	36.36	244,830	4.17
SECRETARY	8,491	10.00	30.30	84,909	1.45
TECHNICIAN	10,602	3.00	9.09	31,806	.54
OTHER PERSONNEL	9,480	8.00	24.25	75,841	1.29
(*) STAFF TOTALS	13,254	33.00	100.00	437,386	7.45
EXPENSES (BY TYPE)					
SUPPLIES				11,840	.20
EQUIPMENT				3,002	.05
TRAVEL				65	
REPAIRS				2,234	.04
TELEPHONE AND POSTAGE				10,800	.18
FUEL					
OTHER EXPENSES					
(*) ADDITIONAL EXPENSE TOTALS				27,941	.47
*** TOTALS ***		33.00		465,327	7.92

ORGANIZATIONAL BUDGET

COMPUTER

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
STAFF (BY CATEGORY)					
PROFESSIONAL	20,295	1.00	33.33	20,295	.35
SECRETARY	11,470	2.00	66.67	22,939	.39
TECHNICIAL					
OTHER PERSONNEL					
(*) STAFF TOTALS	14,411	3.00	100.00	43,234	.74
EXPENSES (BY TYPE)					
SUPPLIES				4,800	.08
EQUIPMENT				506	.01
TRAVEL				552	.01
REPAIRS				632	.01
TELEPHONE AND POSTAGE				3,360	.06
FUEL					
OTHER EXPENSES					
(*) ADDITIONAL EXPENSE TOTALS				9,850	.17
*** TOTALS ***		3.00		53,084	.91

ORGANIZATION BUDGET

STUDENT SERVICES

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
STAFF (BY CATEGORY)					
PROFESSIONAL	22,633	12.33	50.68	279,066	4.75
SECRETARY	9,293	11.00	45.21	102,225	1.74
TECHNICIAN	10,387	1.00	4.11	10,387	.18
OTHER PERSONNEL					
(*) STAFF TOTALS	16,099	24.33	100.00	391, 678	6.67
EXPENSES (BY TYPE)					
SUPPLIES				2,560	.04
EQUIPMENT				1,808	.03
TRAVEL				586	.01
REPAIRS				866	.01
FUEL				10,800	.18
OTHER EXPENSES					
(*) ADDITIONAL EXPENSE TOTALS				16,620	.27
*** TOTALS ***		24.33		408,298	6.94

ORGANIZATIONAL BUDGET — ACADEMIC ADMINISTRATION

STAFF (BY CATEGORY)	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
PROFESSIONAL	27,891	7.00	58.33	195,240	3.[illegible]
SECRETARY	1 ,293	5.00	41.67	56,466	.96
TECHNICIAN					
OTHER PERSONNEL					
(*) STAFF TOTALS	20,976	12.00	100.00	251,706	4.29
EXPENSES (BY TYPE)					
SUPPLIES				2,560	.04
EQUIPMENT				2,495	.04
TRAVEL				1,170	.02
REPAIRS				966	.02
TELEPHONE AND POSTAGE				10,800	.18
FUEL					
OTHER EXPENSES				10,000	.17
(*) ADDITIONAL EXPENSE TOTALS				27.991	.47
*** TOTALS ***		12.00			4.76

ORGANIZATION BUDGET — GENERAL ADMINISTRATION

STAFF (BY CATEGORY)	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
PROFESSIONAL	27,512	11.00	43.14	302,632	5.16
SECRETARY	9,866	14.50	56.86	143,058	2.44
OTHER PERSONNEL					
(*) STAFF TOTALS	17,478	25.50	100.00	445,690	7.60
EXPENSES (BY TYPE)					
SUPPLIES					
EQUIPMENT				2,880	.05
TRAVEL				5,317	.09
REPAIRS				2,950	.05
TELEPHONE AND POSTAGE				2,066	.04
FUEL				10,800	[illegible]
OTHER EXPENSES				13,000	.22
(*) ADDITIONAL EXPENSE TOTALS				37,053	.63
*** TOTALS ***		25.50		482,743	8.23

ORGANIZATIONAL BUDGET — BIOLOGY

	SALARY RATE	FULL TIME EQUIVALENT	PERCENT	COSTS	PERCENT OF ORGAN. BUDGET
CHAIRMAN	19,148	.25	2.27	4,787	.08
FACULTY					
PROFESSOR	19,146	4.75	43.18	90,943	1.55
ASSOCIATE PROFESSOR	18,459	4.00	36.36	73,836	1.26
ASSISTANT PROFESSOR	13,210	2.00	18.19	26,420	.45
INSTRUCTOR					
(*) FACULTY TOTALS	17,817	11.00	100.00	195,986	3.34
STAFF (BY CATEGORY)					
LAB INSTRUCTOR	10,686	1.00	44.44	10,686	.18
SECRETARY	8,444	.25	11.11	2,111	.04
TECHNICIAN	10,686	1.00	44.45	10,686	.18
OTHER PERSONNEL					
(*) STAFF TOTALS	10,437	2.25	100.00	23,483	.40
EXPENSES (BY TYPE)					
SUPPLIES				3,480	.06
EQUIPMENT				558	.01
TRAVEL				390	.01
REPAIRS					
TELEPHONE AND POSTAGE				1,920	.03
OTHER EXPENSES				120	
(*) ADDITIONAL EXPENSE TOTALS				6,468	.11
*** TOTALS ***		13.25		225,937	3.85

COSTS BY COURSE LEVEL	PER-CENT	TOTAL STUDENT CREDIT HOURS	PER-CENT	PERCENT TOT HRS	UNIT COST	FTE FACULTY	PER-CENT	STD CREDIT PER FTE FACULTY
(*) COURSE LEVEL TOTALS	100.00	5,482	100.00	6.14	41.21	11.00	5.85	498.36

UNIVERSITY AND COMMUNITY COLLEGE INTERACTION: A JOINT DEGREE PROGRAM*

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INTRODUCTION

The Joint Degree Program is a cooperative venture between Harpur College of the State University of New York at Binghamton and Broome Community College under which students at Harpur College can work simultaneously toward both a liberal arts B.A. and a vocationally oriented Associate in Applied Science (A.A.S.) degree at Broome Community College (BCC). Most students undertaking the program can complete both degrees in the four-year period usually required for the bachelor's degree. Participation in the program should not reduce eligibility for scholarships, or entail substantial additional costs to the student above the normal cost for the bachelor's degree.

Under these conditions, significant new educational opportunities are made available to the liberal arts student, providing a much wider range of options. For instance, the student may simply want to gain a skill that is more marketable than that of the liberal arts major. The skill can then be used as a simple means to gain either permanent employment, or temporary employment to enable the student to pursue advanced education in the liberal arts field at a later date. At the other end of the scale, the technical study can be used to complement the liberal arts education, creating an entirely new educational package which would not otherwise be possible. One creative example of the latter is a student studying theater at Harpur College and Electrical Technology at Broome, in preparation for a career in television.

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In the design and implementation of the Joint Degree Program, one of the prime considerations has been to utilize the existing strengths of the separate schools so that the widest range of options is opened to the student with a minimal increase in cost (either money or time) to the schools or to the student. Considering the fact that the schools are geographically close (12 km), and despite the fact that they are far apart in educational goals (liberal arts vs. many programs with highly specialized technical skills), the collaboration has been highly successful in creating unique new educational options. At the same time, by capitalizing on the differing features of each of the schools, and avoiding duplication between the schools, the collaboration has been very cost-effective in the creation of these options. Because the students in the program are simultaneously taking courses at both schools, in degree programs at each, this program differs from other cooperative arrangements where students can take courses or spend whole semesters at schools other than their home campus.

Historically, the program was conceived at a time when the job outlook for the liberal arts graduate was becoming increasingly gloomy, and when at the same time, the labor market was requiring more persons with the skills provided by the A.A.S. degree. A small mini-pilot program was created with the support of SUNY Chancellor Ernest Boyer (1973), and later, the full program was supported by the Fund for the Improvement of Post-Secondary Education (1974).

Eight students have now completed the Joint Degree Program; one was graduated in June 1976, one completed the requirements later in 1976, and six completed the requirements in 1977. There are an additional ten students who have not yet completed either set of degree requirements. Because the institutionalized form of the program had not been developed by the senior administrators of the two schools before the end of the 1976-1977 academic year, the problems that would be faced by students entering the program in the immediate future could not be predicted accurately. Under these circumstances, the staff of the program felt unable to recruit actively for new students during the 1976-1977 year. There were, therefore, a smaller number of students entering the program in the 1977-1978 academic year than would otherwise have been expected.

With such a small number of graduates to date, it is difficult to analyze realistically whether the liberal arts-career skill combination has been as effective as anticipated in improving marketability. At the present time, we can only study what the individual graduates have reported. The SUNY Binghamton Office of Academic Evaluation will assist in a follow-up study of the graduates' careers over the next few years.

PARTICIPANTS' ASSESSMENT OF THE PROGRAM

This evaluation of the Joint Degree Program (JDP) is made on the basis of a questionnaire which assesses student attitudes toward the program. As former SUNY-Binghamton President C. Peter Magrath observed at the time of the Program's inception, the value of a liberal arts degree must be defined by individual students (Minutes of the Harpur College Council, May 8, 1973).

This is the first assessment of participants' attitudes toward the JDP. The only other survey of the Program was conducted in 1975 and reported in the Program's 1976 Progress Report (pp. 3-6) This short questionnaire, which had been mailed with the freshman recruitment letter, assessed attitudes of the five percent of the entering freshmen who completed it. Although almost eighteen percent of these students indicated an interest in the JDP, this survey provided data only on initial reactions to the existence of a joint degree program. The major finding of this study was that the attractiveness of the program was primarily in the career opportunities it was thought to afford. The present survey provides data on attitudes and experiences of students who actually are enrolled in the program.

At the time the JDP was created, in the spring of 1973, the Harpur College Council, Educational Planning and Policies Committee, and Academic Standards Committee raised a number of points about the program. These had to do with: 1) the coherence and quality of a liberal arts education; 2) the restriction of credit granted for the completion of practical skill courses; 3) the attraction of a different type of student to Harpur College; and 4) the possibility of limitations in job advancement as a result of possessing a career skill, especially among disadvantaged groups (proposal to the Fund for the Improvement of Post-Secondary Education, pp. 12-15). Points 2 and 3 are answered in the latest Progress Report of the Program (Feb. 1, 1976). Points 1 and 4 are addressed by the present survey, and these are coherence and quality of the JDP for a liberal arts education and potential usefulness of the JDP in a student's career. Point 4 can be answered only partially by this study. Though students' beliefs about the potential usefulness of the JDP in their careers are important, such beliefs are inadequate substitutes for data on actual career patterns. The purpose of this survey, then, is to delineate students' perceptions of the JDP, especially in regard to its coherence and quality and potential usefulness in their careers.

Methodology

Attitudes of the JDP students toward their program were determined by a combination questionnaire-interview instrument which was completed for all 18 students in the program. This combination instrument was completed by an unusually thorough process: Students were sent a questionnaire with instructions to complete the short-answer type questions, leaving the essay-type questions for the interview. They were encouraged to think about the essay questions, and to write answers on the questionnaire if they so desired. During the 45-minute interview, the students' answers to questionnaire items were read back to them by the interviewer. This procedure permitted elaboration and clarification. The questionnaire items remaining to be answered were then asked by the interviewer. Finally, the answers to these questions were read back to the respondent to determine whether this was in fact what the respondent meant to say. This process, though time consuming, was successful in minimizing ambiguities in responses. The intensiveness of this data collection effort, both in its thoroughness and its high response rate, overcomes the small size of the population studied (18).

The questionnaire-interview instrument assesses students' attitudes toward and knowledge about the JDP. Questionnaire items have to do with the two sub-topics: 1) coherence and quality of the program for a liberal arts education, and 2) potential usefulness of joint degrees in a career.

Informational items deal with simple reporting of facts, e.g., why student entered Program or intention to relate first job to degrees. In contrast, critical items deal with judgments made by the student and others, e.g., whether more liberal arts courses should have been taken or students' perceptions of relative usefulness of single rather than double career oriented degrees. Relative to the informational items, the critical items are anticipated to provide a better assessment of student attitudes toward the JDP and its effects on a liberal arts education as well as its potential effects on career patterns.

Conclusions

The purpose of this survey is to determine the extent that students believe their educations and careers have been affected by their enrollment in the Joint Degree Program. Of specific concern are student views on the effect of the JDP on both their liberal arts education and their future occupations. The eighteen students in the Joint Degree Program entered the Program in order to 1) gain access to a wider range of potential jobs, 2) get practical experience, and 3) get a technical background with a liberal arts education. These students want a liberal arts education primarily because they embrace traditional liberal arts goals (a general academic background and the opportunity to develop analytical and critical skills), and because a liberal arts degree is required for graduate work. Their expectation is high that a liberal arts education will provide them with both professional and life enrichment. But, in order to prepare themselves for entry level work and advancement in a career, they enter a joint degree program.

Students hear about the JDP from advertisements, students in the Program, and from Program staff members. Hearing about the Program does not divert them from their original aspirations for a liberal arts education: Most JDP students already have considered their attitudes toward a liberal arts degree even before hearing about the JDP. Participation in the JDP does not cause students to lower their aspirations for a bachelor's degree; in fact, it typically does not even cause them to change their majors.

The real interest JDP students have in getting a liberal arts degree is suggested by the fact that more students will seek employment related to the A.A.S. than will seek employment related to both degrees. But why should students bother getting a liberal arts degree if their future employment will not be related to it? The obvious answer is that they want a liberal arts education for itself rather than for what it will get them. The fact that nearly all the JDP students want to pursue education beyond the bachelor's degree and to change jobs after their initial entry level employment indicates that the aspirations they had when they entered Harpur have not been lowered by their participation in the JDP. Generally, the JDP students do not see a technical career-oriented degree as limiting the possibilities of career advancement, but if it did limit their advancement, their most frequently expressed way of dealing with it would be to change jobs.

Another indication of unchanged aspirations is that the most frequently expressed *desire* (i.e., aspiration) of JDP students is to use their four-year degree more than their two-year degree, while at the same time *expecting* to use the two-year degree more. Students' expectations that the JDP would give them practical experience and prepare them for future occupations are generally fulfilled. Fewer than half of the JDP students have investigated possible jobs, though, and their eventual experience will be more important than what they expect will happen.

JDP students reported their involvement in the Program had positively affected their attitudes toward career education, career opportunities, career goals, and educational goals. Their involvement in the JDP had no overall effect on their attitudes toward the liberal arts, however.

The kind of diversity a liberal arts education implies is obviously provided by the Program: Students find BCC courses to be more practical and applied and with more rote memorization than Harpur courses, which are experienced as more difficult and more academic. Students find the atmosphere and environment at Broome to be more relaxed and friendly than at Harpur, with faculty members generally more helpful and available for one-to-one contact with students. Students are divided on the question of whether fulfilling requirements for two separate degrees on two different campuses is useful to their career goals although they are generally in agreement about the usefulness for their careers of a double rather than a single degree.

With the exception of one student, present JDP students would recommend the Program to other students and all but 2 students would participate again if they had a second chance. With the exception of three students, they judged their experience at BCC to be beneficial. The opinions of JDP students' parents toward the Program are enthusiastic, even though the JDP advisors at HC or BCC are seen by students as being somewhat negative or indifferent about the Program. Although JDP students generally feel that the JDP staff at HC and BCC are already sufficiently helpful, there was some feeling among students that more coordination should occur in registration and scheduling between the two schools, especially at Broome. Other problems included adjustment to a different campus and the heavy academic load. Students recommend that these problems with the program be solved, at least in part, through better documentation of the procedures, instructions, guidelines, and requirements, that is, the communication of better information.

The outstanding conclusion is that the Joint Degree Program has the important outcome of qualifying its graduates for employment without compromising or interfering with their liberal arts education. The effect of the Joint Degree Program on the occupational careers and life satisfaction of its graduates is an essential question to be answered over the next decade.

CONCLUSION: STAFF ASSESSMENT OF THE PROGRAM

In summary, the staff of the JDP feels that although the program was never intended to have an impact on large numbers of Harpur College students, and indeed the numbers have been slightly smaller than originally anticipated, it has nevertheless, proven itself to be an educationally sound and cost-effective mechanism which can provide unique and valuable options that would not otherwise be available to the students of either school. As had been hoped, the cooperation for the JDP has been broadened to allow the schools better to provide other educational options to all of their students. In a sense, this may be one strong measure of whatever success that the program may claim.

The program staff further hopes that the problems we have had, the new approaches we have tried and the changes that we have made will serve to help other schools in cooperating in order to broaden the options available to their students at a minimum expenditure. Indeed in retrospect, with such widely divergent missions (Harpur College on balance is a preparatory college for graduate study, and Broome Community College is an unusually effective and productive professional school for technical careers.), this might well have been a much less than ideal setting for such a Joint Degree Program. If this is the case, the cooperation that has been established is a demonstration that many other cooperative programs can be established between geographically proximate schools.

In the establishment of similar programs at other schools, the most valuable experience gained from this project is that the cooperation established between the schools must be whole-hearted and dedicated. The project directors were unfailingly candid and earnest in trying to provide help both when dealing with each other and with the students. The various committees and administrators were always willing to re-think how established college rules could best be re-interpreted, not to make diminished educational demands on the students, but to modify the purely procedural demands such as residency requirements which were designed for normal students but were occasionally inappropriate for students in the Joint Degree Program. The individual faculty members were willing to provide additional assistance in many ways, realizing the unusual situation of the students.

Lastly, it seems to the JDP staff that although the student must always bear some share of the burden in the process of establishing any experimental program, in this case, because of the radical departure of the program from the normal functioning of the schools and the educational system in New York

State, the students in the Program were subjected to almost intolerable obstacles. These included threats to terminate scholarships because the sponsors had no experience with a full-time program in which the student registered for a part-time load at the home campus, mis-matched vacations and school years with dorms closing while classes at the other school continued, innumerable cases where a normally routine administrative check would show an anomaly that would threaten the students continued status in good standing, and a host of other crises, each of which usually arose unexpectedly and had to be resolved quickly. The Joint Degree Program will never be an easy program for a student, but at the present time, the JDP staff hopes that most of the problems that can arise have already been dealt with so that future students will at least have fewer problems. The program owes its greatest debt and its continued existence to the students who persevered and surmounted all of the obstacles in the establishment of the program.

UNDERGRADUATE GRADING PATTERNS: Comparative and Trend Data, The University of Connecticut and Other Research Universities

Althea J. McLaughlin, Lois E. Torrence
The University of Connecticut

The changes in undergraduate grading practices which those of us in higher education have been observing with interest and concern for the past dozen years have reached a point within the last few years where pressures are building strongly to reverse the inflationary trends. Whether fortunately or not, higher education is not in the position of being able to appoint a special advisor to mediate our inflation crisis; so let us examine the experience of one institution, the University of Connecticut, in relation to the national higher education picture, to see if we can gain some insight into the causes and control of grade inflation.

Such an inquiry starts with certain assumptions, not all of which are universally shared. Have undergraduate students on the average received higher grades in recent years than they did ten years ago? Yes, the evidence and research data, some of which I will shortly present to you, are clear on this point. But the troublesome assumption for any inquiry into halting the upward trend of grades is that we should indeed be sorting students out into a bell-shaped curve and labelling their performances accordingly. Any discussion of grading practices must come to terms with this question. We immediately recognize that sorting out and labelling student performance has philosophical implications (Should we judge our brothers?), educational implications (How do we motivate learning?), societal implications (How do we certify competence? reward needed services?) -- to suggest only a few of the issues involved. But all of these questions have contingent answers. In this spirit I am suggesting that the questions raised by grade inflation will have different answers for various student groups, at different times in social history, and for each of the various categories of educational institutions. For the purposes of this paper I am assuming that yes, indeed, we do need to maintain standards and control grade inflation for the student group and institutional type that I am examining, that is, undergraduate students attending a research university. Such institutions, both public and private, have a clear mission to stand at the leading edge of scholarship and research and to seek excellence in this quest. Most students at the major research universities expect to be judged and are preparing themselves for future positions of responsibility and leadership, including academic and research careers. With these high-minded assumptions about the character of the students and institutions behind us, let's look at the research data which compare the University of Connecticut's grading practices with the experiences of other leading research universities as reported in a study by Sidney Suslow of the University of California at Berkeley in 1976. This national study of grade inflation by Dr. Suslow, which was published in Change Magazine in March 1977, finds that from the mid 1960's to the mid 1970's "the percentage of A grades more than doubled, from 16 percent to 34 percent, while the percentage of C grades diminished by not quite half, from 37 percent to 21 percent." This information was obtained from survey responses by 23 of the leading 50 federally funded research universities and institutes of technology, public and private.

The full study by Suslow[1] provides detail on the responses by some of the universities and thus makes possible some comparisons with grading practices at the University of Connecticut between 1965 and 1974. Our grade distribution data is limited to the Storrs campus in this comparison.[2]

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[1] Sidney Suslow, "A Report on an Interinstitutional Survey of Undergraduate Scholastic Grading, 1960's to 1970's", Office of Institutional Research, University of California, Berkeley. February 1976 (mimeo).

[2] In addition to the Storrs campus, the University has five undergraduate branches which offer courses primarily at the lower division level. For 1965, branch grade distribution data were not readily available. For 1974 the data are available but were not included in order to maintain the comparability between 1965 and 1974 University data. It should be noted that at least in the 1970's, branch grade distributions were somewhat lower than for Storrs. Thus, excluding the branches results in a slightly higher grade distribution than would be found if Storrs and branch grades were combined.

Eight of the research institutions in the Suslow study provided data on 1965 (or, in one case, on 1963) which give a base for examining the nature of the well-publicized "grade inflation" over a ten year period.

Table I gives the 1965 percentages of undergraduate A, B and C grades at the University of Connecticut and at the seven survey institutions with detailed information. The percentages (both in this table and in the later tables) are based on the total number of A-F grades only, thus excluding Incompletes, Withdrawals, Pass-Fail and other variations in institutional recording practices. Table I also shows the undergraduate derived grade point average for each institution, calculated on a 4.0 scale and based on the assumption that each grade carries the same credit hour weight.

TABLE I

% of Undergraduate A, B and C Grades and Derived Grade Point Average, 1965, with Rank Order, High to Low, (Nine Research Institutions)

Institution	% A	Rank Order	% B	Rank Order	% C	Rank Order	Derived Grade Point Average	Rank Order
1	19.2%	3	37.1%	4	31.1%	7	2.64	2.5
2	17.8	5	34.9	5	36.0	3	2.56	5
3	18.1	4	37.4	3	33.1	5	2.59	4
4	20.0	2	32.2	7	34.4	4	2.53	6
5	15.9	7	32.5	6	36.4	2	2.44	7
6	14.6	8	31.4	9	32.8	6	2.31	9
7	17.5	6	41.7	1	30.8	9	2.64	2.5
8	22.7	1	39.2	2	30.9	8	2.72	1
UConn	11.8	9	32.0	8	38.8	1	2.34	8

In relation to these eight research institutions, the University of Connecticut in 1965 had the smallest percentage of A grades, the largest percentage of C grades and next to the lowest derived grade point average.

Seven of these eight Suslow survey institutions provided grade distribution data for 1974 as did an additional eight universities which had not given data for 1965. Table II-A gives the 1974 data for the institutions which did have data for both years.

TABLE II-A

% of Undergraduate A, B and C Grades and Derived Grade Point Average, 1974, with Rank Order, High to Low, (Eight Research Institutions)

Institution	% A	Rank Order	% B	Rank Order	% C	Rank Order	Derived Grade Point Average	Rank Order
1	33.9%	3	35.9%	7	21.0%	5	2.91	4.5
3	31.2	4	41.9	2	20.5	6	2.96	3
4	36.3	1	36.2	6	20.3	7	2.97	2
5	29.1	6	39.6	4	22.5	3	2.86	6
6	30.3	5	35.4	8	23.7	2	2.81	7
7	28.5	7	43.4	1	21.1	4	2.91	4.5
8	35.0	2	40.0	3	20.0	8	3.03	1
UConn	26.3	8	38.5	5	26.3	1	2.80	8

Within this group of institutions the University of Connecticut in 1974 still had the smallest percentage of A grades and the largest percentage of C grades, and now had the lowest undergraduate grade point average.

Table II-B shows the 1974 University of Connecticut data in relation to the fifteen survey institutions with data for that year. In this larger context, the University of Connecticut again had the smallest percentage of A grades and the lowest grade point average and had the next to the highest percentage of C grades.

Quite clearly, in comparison with the research institutions in the Suslow survey, the University of Connecticut evidenced more rigorous grading practices in 1965 and, again in comparison, was in essentially the same position in 1974.

This is not intended to suggest that the University of Connecticut has been immune from "grade inflation." On the contrary, the change between 1965 and 1974 was larger for the University of Connecticut than for several of the seven survey institutions. Table III shows the change between 1965 and 1974 on the various items.

TABLE II-B

% of Undergraduate A, B and C Grades and Derived Grade Point Average, 1974, with Rank Order, High to Low, (Sixteen Research Institutions)

Institution	% A	Rank Order	% B	Rank Order	% C	Rank Order	Derived Grade Point Average	Rank Order
1	33.9%	7	35.9%	12	21.0%	9	2.91	8.5
3	31.2	10	41.9	4	20.5	10	2.96	7
4	36.3	3	36.2	11	20.3	11	2.97	6
5	29.1	14	39.6	6	22.5	5	2.86	12
6	30.3	12	35.4	13	23.7	3.5	2.81	15
7	28.5	15	43.4	2	21.1	8	2.91	8.5
8	35.0	5	40.0	5	20.0	12	3.03	5
9	30.9	11	32.7	15	26.9	1	2.82	14
10	33.0	9	36.4	9.5	21.6	6	2.89	10
11	45.5	1	30.0	16	15.9	16	3.07	1.5
12	35.1	4	43.1	3	17.0	14.5	3.07	1.5
13	33.8	8	44.5	1	17.0	14.5	3.06	3.5
14	34.1	6	34.1	14	21.2	7	2.87	11
15	29.9	13	36.7	8	23.7	3.5	2.84	13
16	38.3	2	36.4	9.5	19.5	13	3.06	3.5
UConn	26.3	16	38.5	7	26.3	2	2.80	16

TABLE III

Increase or Decrease between 1964 and 1975 in % of A, B and C Grades and Derived Grade Point Average, with Rank Order, High to Low, (Eight Research Institutions)

Institution	% A (+ or -)	Rank Order	% B (+ or-)	Rank Order	% C (+ or -)	Rank Order	Derived Grade Point Average (+ or -)	Rank Order
1	+14.7%	3	-1.2%	8	-10.1%	6	+.31	6.5
3	+13.1	6	+4.5	3	-12.6	3	+.37	5
4	+16.3	1	+4.0	4.5	-14.1	1	+.44	3
5	+13.2	5	+7.1	1	-13.9	2	+.42	4
6	+15.7	2	+4.0	4.5	- 9.1	8	+.50	1
7	+11.0	8	+1.7	6	- 9.7	7	+.27	8
8	+12.3	7	+0.8	7	-10.9	5	+.31	6.5
UConn	+14.5	4	+6.5	2	-12.5	4	+.46	2

Within this group, the University of Connecticut had the second largest increase in the undergraduate derived grade point average and was roughly in the middle range (fourth highest) in both the increase in percentage of A grades and the decrease in the percentage of C grades. "Grade inflation" has indeed occurred at the University.

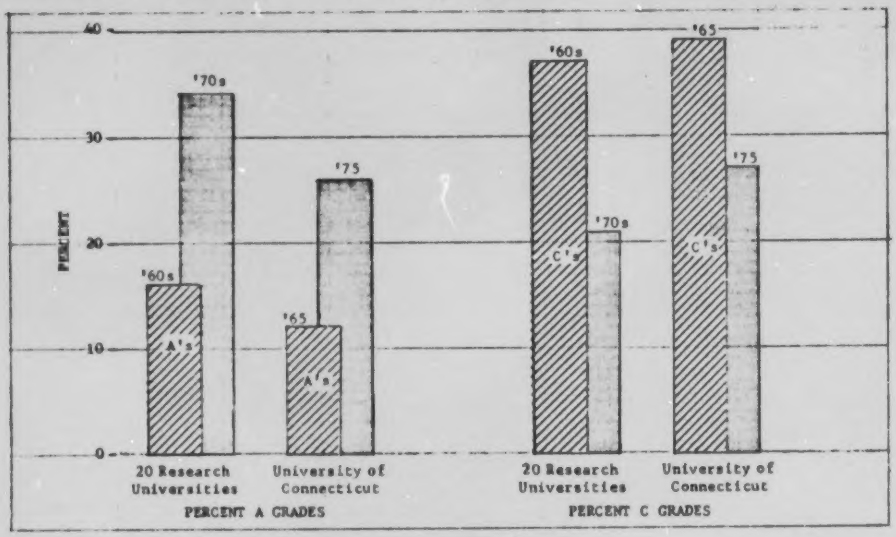
In his study, Suslow calculated a "1960s" grade distribution and a "1970s" distribution for the participating institutions. Chart A indicates the 1965 and 1974 University of Connecticut data in relation to the Suslow survey data for the overall percentages of undergraduate A grades and C grades at some 20 research institutions. According to the Suslow data, the A's in the 1960's were roughly 16% and in the 1970's increased to 34%. In the same period the C's decreased from about 37% to 21%. The University of Connecticut undergraduate distribution showed about 12% A's in 1965 and 26% in 1974 while the proportion of C grades decreased from nearly 39% in 1965 to 26% in 1974.

On the basis of this data we reported to our faculty and to the University community in Storrs that a review of undergraduate grading patterns at the University of Connecticut and the comparisons with the research institutions in the Suslow study lead to two conclusions: 1) The University of Connecticut has experienced a shift toward higher grades since 1964; and 2) even with this trend toward higher grades, the University in 1974 had the lowest derived grade point average when compared with fifteen research institutions in a national study.

At this point I should pause for a moment to return to the original question which we had hoped this paper might help to answer. That is, can Connecticut's experience with changing undergraduate grading patterns give us some insight into the causes and control of grade inflation?

First, let me assure you that I am not implying any smug superiority for the University of Connecticut in this report on comparative grade inflation.

CHART A: UNDERGRADUATE GRADE INFLATION, MID 60s TO MID 70s
Survey of 20 Research Universities Compared with the University of Connecticut



The Suslow study promised anonymity to the survey institutions; however, they did include some of the top universities in the nation, and all of the participating schools would be considered well-established and substantial institutions. At the same time we think they are a reasonable comparison group for Connecticut. (In the NSF report on leading research universities Connecticut has ranked 48, 50, and 51 in the past three years.) My real interest is in looking for those factors in the University of Connecticut's experience which varied from the national experience during the past decade which might suggest why Connecticut has maintained a relative degree of control over grade inflation.

Discussion of the factors that are thought to explain some part of the grade spiral are often divided into those related to student, faculty, or institutional characteristics. Suslow lists a series of factors and Robert Birnbaum[3] provides a critical analysis of many of the factors as experienced by the University of Wisconsin, Oshkosh, in the Fall 77 issue of the Journal of Higher Education.

One area of interest has been the relationship of student ability and preparation to the changes in grading patterns. Birnbaum summarized eight studies which showed that for the period of 1951 to 1968 when student aptitude test scores and high school grades were increasing, collegiate grading patterns remained stable. This was equally true during those earlier years for schools faced with decreases in the ability level of entering students. Nationally, the mean SAT scores for college-bound seniors declined every year from 1967 to the present when it seems to be levelling off. At Connecticut, the SAT scores for our entering students increased each year until 1970, stayed level through 1972, and then began to decline in tandem with the national means. This could be interpreted as justifying some small measure of the grade increases at Connecticut for the first half of the decade we are reviewing, except that Birnbaum concludes "that grades remained relatively stable regardless of changes of student ability."

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[3] "Factors Related to University Grade Inflation," JHE, Vol XLVIII, No 5, pp 519-539.

Another factor with a slight impact would be the particular mix of student levels on the Storrs campus. In 1965, 27% of the undergraduate students were Freshmen; in 1974, 24%, and in 1977, 22% were Freshmen. Since the average grades of upperclass students will exceed those of Freshmen, the changing student mix would account for some upward trend in average grades. A closely associated factor is the balance between lower division and upper division courses. Our data, as well as Suslow's, show that without exception the average grade is lower, and more C's and fewer A's are given in lower division courses. In 1965 54% of Connecticut's undergraduate courses were lower division level. By the Fall of 1971 51% were lower division courses. A further decline to 45% occurred in the Fall of 1974, and for the past three years 43% of undergraduate courses were lower division level. As an aside, it is interesting to note that approximately 4% to 5% more upper division courses are taught in the Spring term which could explain some part of the see-saw pattern for Fall-Spring grades, with Spring grades being higher, a fact which a number of schools, including Connecticut, have observed. Charts B and C show the percent distribution of grades at the lower division and upper division levels for 1965 to 1977.

Another factor widely discussed in the literature is the impact of institutional policies on grading patterns. Changes in rules for withdrawals, the

PERCENT DISTRIBUTION OF GRADES BY COURSE LEVEL
University of Connecticut, Storrs Campus, Fall 65 & Fall 70 - Spring 77

CHART B: Lower Division Courses

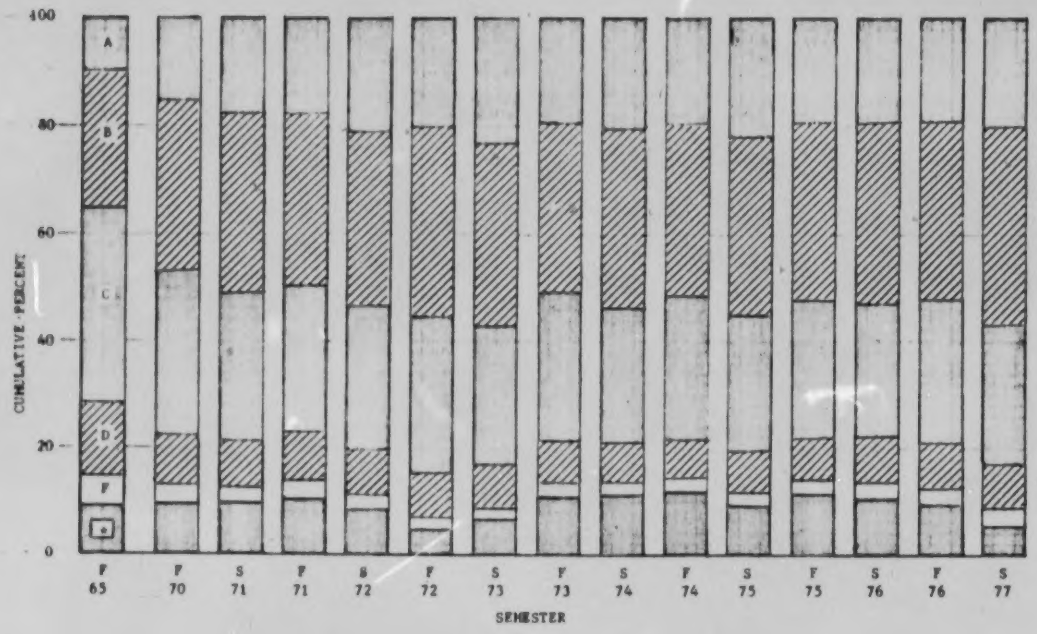
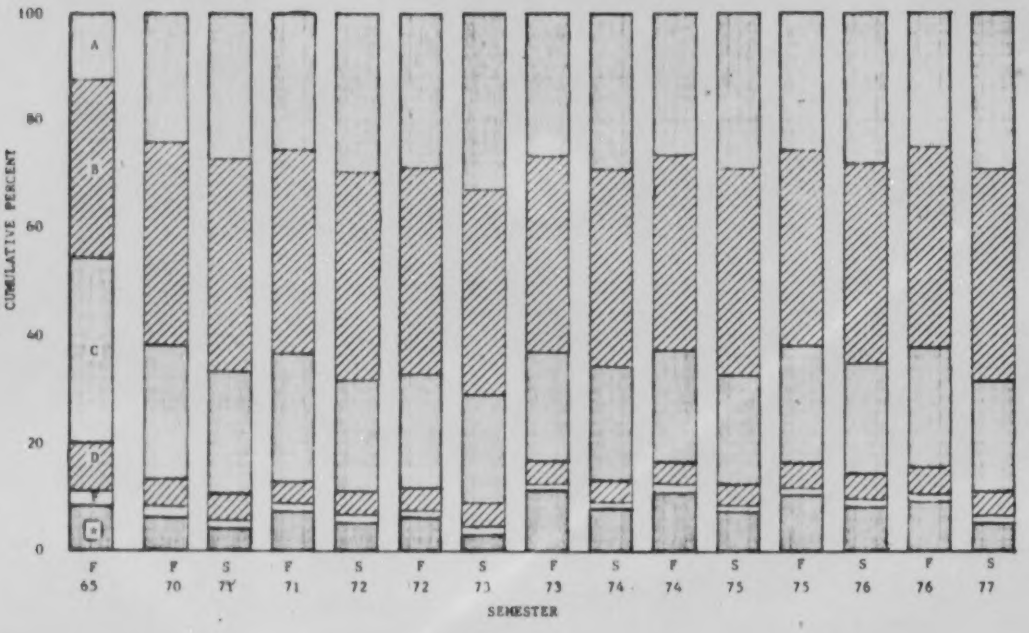


CHART C: Upper Division Courses



*All other grades includes: Incomplete, absent from exam, satisfactory, unsatisfactory, withdrawal, and no grade reported.

availability of Pass-Fail or credit-no credit options, the exclusion of F grades under certain circumstances -- all these practices affected grade point averages "without affecting the level of achievement required to earn a stated grade in a specific course," as Birnbaum points out. In fact, he demonstrates that these rule changes account for an increase in grade point averages of 0.2 of a point at Wisconsin between 1968 and 1974. [pp 533-534] Suslow notes that 13 of the 20 institutions in his study used one or more Pass grades, but that such grades generally represented less than 5% of the total grades, with a declining trend in the use of Pass grades for all except one of the institutions in the sample.

The most interesting aspect of changes in grading patterns is related to observations of changes in faculty or student behavior. Any consideration of these changes is speculative, but one senses that the social factors which marked the decade from the mid 60s to the mid 70s did indeed have significant impacts on faculty, students, and administrators in higher education. Such forces as the escalation of the Vietnam war, the draft and the requirement that schools report rank in class data to Selective Service, the civil rights ferment which led to minority students and others not previously served by higher education being brought into the system -- all these were factors in realigning values and expectations by students and faculties. That such considerations can explain why grades increased is not subject to proof, but as Birnbaum expressed it:

> Faculty were called upon through grading to make decisions about justice, social mobility, and institutionalized racism and again grading became a proxy for the most salient social issues which had not yet been clearly resolved by the polity. [p. 523]

The University of Connecticut did experience some of these social changes in particular ways which might have slowed the impact of grade inflation. We were caught up in the whirlwinds of the 60s relatively late. Our moment of crisis was the Spring term of 1969. The Free Speech Movement had erupted in Berkeley five years earlier. Even more important was the institutional stage of the

University's development in the early 60s. After some twenty years of a successful "bricks and mortar" era, the advent of a new president and an interested legislature pushed Connecticut into a decade of seeking academic excellence. The model was a group of ten target and ten pace-setting institutions both public and private. Consequently the pressure was to strengthen traditional academic standards rather than respond to the winds for innovative educational practices that influenced many other universities. A strong faculty Senate and a firmly established Scholastic Standards committee resisted changes in grading policies. The rural location of the University also had a conservative impact. Because of the University's rural location, the influx of students from academically deprived backgrounds was gradual, and only within the recent past has the University made an all-out effort to attract well-qualified minority students.

All of these currents have combined to encourage the University of Connecticut to develop a traditional academic institutional self-concept which is shared by both the faculty and the administration. As a relatively young institution, geographically isolated, and wrapped up in its own development, Connecticut was influenced by the social changes of the decade less than many other schools. I can only suggest that this was a significant factor in slowing the grade spiral at Connecticut. Indeed, while many of the factors discussed in this paper had some marginal influence on grading patterns, the primary factor which operated for Connecticut and other research universities in maintaining a degree of control over the pressures to increase grades was an underlying consensus of appropriate academic standards which an essentially autonomous faculty implemented.

INSTITUTIONAL FLEXIBILITY: THE GLASSBORO STATE COLLEGE FLEXIBILITY INDEX

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BACKGROUND

In anticipation of steady-state or declining enrollments, many educators began to examine faculty staffing practices at their institutions. In New Jersey in the early 1970's, the immediate reaction by many administrators was to propose the establishment of quotas on tenured faculty.

At Glassboro State College in the Fall of 1972, the Board of Trustees proposed the establishment of specific quotas of tenured faculty for the purpose of maintaining institutional flexibility. The faculty raised strenuous objections. Challenged by the Board of Trustees to develop a positive plan that would help the institution maintain staff flexibility, the Faculty Senate proposed a Fourteen-Point Plan for Positive Action: Institutional Flexibility and Tenure Quotas. The Glassboro State College Faculty took the position in that document, that the establishment of tenure quotas did not automatically and simply increase institutional flexibility. Institutional flexibility was defined as "the continuing ability of the institution to implement new or modify existing programs; a rationale which sees the ability to employ new faculty or to redirect present faculty to meet staffing needs for planned program implementation and development." The focus of the document was on the recognition that there were a number of ways to produce new hires and that staffing needs based upon program planning could be projected.

As part of the planning process during 1977, Dr. Mark M. Chamberlain, Glassboro State College President, appointed a Task Force for Faculty/Staff Development. One charge to the Task Force was "to develop plans to enhance the flexibility of the college to meet new societal needs." A short time later the Council of State Colleges recommended that each college "develop staffing plans that included an institutional renewal index projected over the next five-year period." The Glassboro State College Board of Trustees while acting on personnel decisions at the end of the 1977 calendar year, charged the faculty "to devise a staffing plan that will enhance institutional flexibility and that will permit continued hiring of new faculty, some of whom will move forward to tenured positions."

With those statements and actions taking place, the Task Force for Faculty/Staff Development undertook the development of a staff flexibility index.

INTRODUCTION

The Task Force first examined all sources of faculty time that could be used to increase institutional flexibility. It then developed a staffing flexibility index to reflect the ability of the college to meet present and future instructional requirements over a five-year time span. (See Tables I, II and III)

Flexibility index projections enabled the Task Force to then develop strategies to increase the raw numbers reflected in factor categories and thereby increase college-wide flexibility over a five-year period.

Task Force Projections

The Task Force cast projections of faculty time for three sets of steady-state conditions: least optimistic, most likely and most optimistic. These projections assumed FTE budgeted enrollments for a five-year time span. They are consistent with past history and also reflect, as much as possible, socio-economic and other factors that could influence college enrollments. The number of budgeted faculty lines based on these enrollment projections was derived from the existing state budget formula.

Using the enrollment/faculty line base, the Task Force identified those factors that were necessary components of a staff flexibility index. Rather than focusing exclusively on the tenured/non-tenured distribution of full-time faculty, it considered additional factors, ranked them in categories, and assigned a relative weight to reflect the potential flexibility each factor gave to the development of an overall renewal index. It then calculated a ratio that when applied to the number of budgeted faculty lines indicated a percentage of staff resource flexibility over the next five years based on the three sets of conditions noted previously.

Analysis of Flexibility Factors: Ranking and Assigned Weighting

Category I - Assigned Weight 1.0

Factors:
- Retirements
- Resignations/Deaths
- Non-reappointments

Rationale: Category I factors were assigned the heaviest weighting since these factors represent one-for-one replacement potential.

Category II - Assigned Weight .8

Factors:
- Temporary Part-time
- Adjunct (Full-time Equivalent Faculty)

Rationale: These factors derive from State budgeted allocations, leaves of absences, sabbatical leaves and unfilled resignations and provide considerable instructional flexibility in combination with determinations made on Category I replacements. These lines can be reallocated from semester to semester as well as year to year.

Category III - Assigned Weight .4

Factors: Overload (Full-time equivalent faculty)
Special Funded Adjunct (Full-time equivalent faculty) Interdepartmental Assignment/Reassignment Capability

Rationale: The reduction in relative weighting between category II and III factors is based on the recognition that overload and special funded adjunct faculty are dependent on the number of faculty lines already allocated (including special funded lines) i.e., on the balance that has been struck administratively between replacement of lines on a one-for-one basis (Category I) and the use of temporary part-time and adjunct staff (Category II).

Further, the reassignment capability of present full-time staff is recognized as a means of achieving flexibility when particular faculty competencies and programmatic needs coincide.

Category IV - Assigned Weight .3

Factors: Special Funded Faculty (Headcount)
Non-tenured Faculty

Rationale: Special funded lines provide flexibility, and Glassboro's record in securing outside funds has been very good. Special funded line dollars and their overload potential not only support the funded program, but often release staff to maintain present offerings as well as develop new programs. Since this factor varies with the nature of the grant, the assigned flexibility weight is lower than for other factors. Non-tenured lines also offer some staffing flexibility. However, the specialized competencies of non-tenured faculty members reduce the weight that can be given to this factor.

Category V - Assigned Weight .1

Factor: Tenured Administrators

Rationale: Tenured administrators are a potential source of staff flexibility if their particular competencies can contribute to present or future programs. This factor represents a resource that can be utilized on a part-time or full-time basis and represents a temporary or permanent reassignment capability.

Examples of Implications of Projections

Flexibility index projections enabled the Task Force to develop strategies to increase the raw numbers reflected in factor categories and thereby increase college-wide flexibility over a five-year period. The following strategies are examples of Task Force recommendations based upon data generated from the Flexibility Index.

1. Reassignment of Faculty - Encourage faculty reassignment from low enrollment areas to other areas experiencing continued growth. Example - Modification of existing reward structures to encourage voluntary reassignment.
2. Early Retirement Incentives - Within limitations of pension statutes, civil service rules and regulations, etc., Board of Trustees should initiate discussions with Department of Higher Education staff and

other state agencies to explore early retirement options.

3. Guest Lecturer - Permanent establishment of funds for eight guest lecturers/artists in residence. One year, full-time positions to be filled by outstanding persons to enhance or supplement existing or new programs.

4. Temporary Full-Time and Part-Time Teaching Time - Continued use and expansion of temporary full-time and part-time faculty to supplement and enhance regular faculty skills. Goal - - no more than 20% of teaching time on a temporary full-time and part-time basis.

It has been demonstrated that the development of a flexibility index has resulted in a reasoned approach to staff planning. However, staff planning must be tied to program planning, and strategies to enhance flexibility must be compatible with programmatic and instructional excellence. Only the best judgment, carefully exercised by administrators and faculty, can assure both flexibility and quality.

TABLE I

GLASSBORO STATE COLLEGE FLEXIBILITY INDEX
FIVE-YEAR PROJECTIONS
(PROBABLE UNDER EXISTING PRACTICES)

FACTORS	Weight	1978-79		1979-80		1980-81		1981-82		1982-83	
		Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines
RETIREMENTS	1.0	9	9	7	7	13	13	11	11	9	9
RESIGNATIONS/DEATHS	1.0	2	2	2	2	2	2	2	2	2	2
NON-REAPPOINTMENTS	1.0	2	2	2	2	2	2	2	2	2	2
NON-TENURED (a)	.3	49	14.7	31	9.3	42	12.6	42	12.6	55	16.5
TEMPORARY PART-TIME (b)	.8	50	40	50	40	52	41.6	54	43.2	54	43.2
OVERLOAD (c)	.4	40	16.0	40	16.0	40	16.0	43	17.2	43	17.2
ADJUNCT (c)	.8	50	40.0	50	40.0	50	40.0	52	41.6	52	41.6
SPECIAL FUNDED OVERLOAD (c)	.3	6	1.8	6	1.8	7	2.1	7	2.1	8	2.5
SPECIAL FUNDED ADJUNCT (c)	.4	1	.4	1	.4	2	.8	2	.8	3	1.2
SPECIAL FUNDED (b)	.3	12	3.6	14	4.2	14	4.2	15	4.5	15	4.5
JOINT APPOINTMENTS, INTER-DEPARTMENTAL ASSIGNMENTS AND REASSIGNMENT CAPABILITY	.4	19	7.6	20	8	22	8.8	22	8.8	23	9.2
TENURED ADMINISTRATORS (d)	.1	12	1.2	12	1.2	13	1.2	14	1.4	14	1.4
ACTUAL ENROLLMENT (e)		10,462		10,395		10,462		10,530		10,530	
ACTUAL FTE ENROLLMENT		7,750		7,700		7,750		7,800		7,800	
BUDGETED HEADCOUNT ENROLLMENT		11,237		11,165		11,237		11,310		11,310	
FTE BUDGETED ENROLLMENT		7,750		7,700		7,750		7,800		7,800	
BUDGETED FACULTY (f)		362		360		362		364		364	
WEIGHTED LINES			138.3		131.9		144.4		147.2		150.2
WEIGHTED INDEX			38.2		36.64		39.89		40.44		41.26

(a) Special Funding Included (b) Headcount (c) Full-Time Equivalent Faculty (d) With Faculty Rank (e) Headcount
(f) Headcount, State Funded With Rank

TABLE II

GLASSBORO STATE COLLEGE FLEXIBILITY INDEX
FIVE-YEAR PROJECTIONS
(MOST OPTIMISTIC UNDER EXISTING PRACTICES)

FACTORS	Weight	1978-79		1979-80		1980-81		1981-82		1982-83	
		Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines
RETIREMENTS	1.0	9	9	7	7	13	13	11	11	9	9
RESIGNATIONS/DEATHS	1.0	3	3	3	3	3	3	3	3	3	3
NON-REAPPOINTMENTS	1.0	3	3	3	3	3	3	3	3	3	3
NON-TENURED (a)	.3	49	14.7	44	13.2	61	18.3	61	18.3	80	24
TEMPORARY PART-TIME (b)	.8	50	40	52	41.6	54	43.2	54	43.2	58	46.4
OVERLOAD (c)	.4	40	16.0	43	17.2	45	18.0	45	18.0	46	18.4
ADJUNCT (c)	.8	50	40.4	52	41.6	52	41.6	53	42.4	53	42.4
SPECIAL FUNDED OVERLOAD (c)	.3	7	2.1	7	2.1	8	2.4	8	2.4	9	2.7
SPECIAL FUNDED ADJUNCT (c)	.4	2	.8	2	.8	3	1.2	3	1.2	4	1.6
SPECIAL FUNDED (b)	.3	14	4.2	15	4.5	16	4.8	16	4.8	16	4.8
JOINT APPOINTMENTS, INTER-DEPARTMENTAL ASSIGNMENTS AND REASSIGNMENT CAPABILITY	.4	20	8	22	8.8	24	9.6	26	10.4	26	10.4
TENURED ADMINISTRATORS (d)	.1	12	1.2	13	1.3	14	1.4	14	1.4	15	1.5
ACTUAL ENROLLMENT (e)		10,665		10,800		10,867		10,935		11,000	
ACTUAL FTE ENROLLMENT		7,900		8,000		8,050		8,100		8,150	
BUDGETED HEADCOUNT ENROLLMENT		11,237		11,455		11,600		11,600		11,745	
FTE BUDGETED ENROLLMENT		7,750		7,900		8,000		8,000		8,100	
BUDGETED FACULTY (f)		362		369		374		374		378	
WEIGHTED LINES			142.4		144.1		159.5		159.1		167.2
WEIGHTED INDEX			39.34		39.05		42.64		42.54		44.23

(a) Special Funding Included (b) Headcount (c) Full-Time Equivalent Faculty (d) With Faculty Rank (e) Headcount
(f) Headcount, State Funded With Rank

TABLE III

GLASSBORO STATE COLLEGE FLEXIBILITY INDEX
FIVE-YEAR PROJECTIONS
(LEAST OPTIMISTIC UNDER EXISTING PRACTICES)

FACTORS	Weight	1978-79		1979-80		1980-81		1981-82		1982-83	
		Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines	Lines	Weighted Lines
RETIREMENTS	1.0	9	9	7	7	13	13	11	11	9	9
RESIGNATIONS/DEATHS	1.0	1	1	1	1	1	1	1	1	1	1
NON-REAPPOINTMENTS	1.0	1	1	1	1	1	1	1	1	1	1
NON-TENURED (a)	.3	49	14.7	29	8.7	21	6.3	4	1.2	4	1.2
TEMPORARY PART-TIME (b)	.8	40	32.0	30	24	30	24	30	24	35	28
OVERLOAD (c)	.4	40	16.0	35	14	35	14	30	12	30	12
ADJUNCT (c)	.8	50	40.0	45	36	40	32	35	28	35	28
SPECIAL FUNDED OVERLOAD (c)	.3	5	1.5	5	1.5	4	1.2	4	1.2	4	1.2
SPECIAL FUNDED ADJUNCT (c)	.4	1	.4	1	.4	0	0	0	0	1	.4
SPECIAL FUNDED (b)	.3	12	3.6	10	3.0	10	3.0	8	2.4	8	2.4
JOINT APPOINTMENTS, INTER-DEPARTMENTAL ASSIGNMENTS AND REASSIGNMENT CAPABILITY	.4	19	7.6	18	7.2	16	6.4	16	6.4	17	6.8
TENURED ADMINISTRATORS (d)	.1	11	1.1	10	1.0	9	.9	8	.8	8	.8
ACTUAL ENROLLMENT (e)		10,003		9,504		9,028		9,504		10,003	
ACTUAL FTE ENROLLMENT		7,410		7,040		6,688		7,040		7,410	
BUDGETED HEADCOUNT ENROLLMENT		11,237		10,701		9,932		9,932		10,150	
FTE BUDGETED ENROLLMENT		7,750		7,380		6,850		6,850		7,000	
BUDGETED FACULTY (f)		362		345		320		320		327	
WEIGHTED LINES			127.9		104.8		102.8		89.0		91.8
WEIGHTED INDEX			35.25		30.29		32.03		27.72		28.07

(a) Special Funding Included (b) Headcount (c) Full-Time Equivalent Faculty (d) With Faculty Rank (e) Headcount
(f) Headcount, State Funded With Rank

COLLECTIVE BARGAINING IN HIGHER EDUCATION:
A PRELIMINARY REPORT OF A CONFERENCE BOARD STUDY

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In Fall 1977, The Conference Board (a major, non-profit research organization serving the corporate world) undertook a large-scale study to provide a comprehensive and practical review of a spectrum of labor relations activities in both the industrial arena and the world of higher education. The study examined how labor relations goals are developed and to what extent these goals are achieved in relation to the extent and nature of unionization and the structure of the bargaining relationships. Data were gathered - both through survey methods applied to a large number of corporate and educational institutions and through in-depth interviews with officers of a smaller number of selected institutions.

Questionnaires were mailed to 2,497 of the largest companies in the United States and to the 1001 colleges and universities which offer at least a baccalaureate in the liberal arts or in teacher preparation, have an enrollment of more than 1,000 students, and are chartered as not-for-profit.

Response Rate and Unionization

Some 804 corporate responses were received, for an overall response rate of 32% (804/2497); of the respondents, 673 (84%) represented corporations with one (or more) unions, while 112 (16%) represented corporations with no unions; 2% (19) of the responses proved unusable. Some 555 responses were received from institutions of higher education, for an overall response rate of 55% (555/1001). These included 83 (15%) from institutions which have only non-faculty unions; 38 (7%) from institutions with both faculty and non-faculty unions; 5 (1%) from institutions with faculty unions only; and 353 (64%) from institutions with neither faculty nor non-faculty unions. In addition, 76 (14%) proved not usable for this preliminary report. Each of the 50 states and the District of Columbia are represented in the sample; data from statewide systems, however, are not included in this report.

Of the 749 usable higher education responses, 215 (45%) were from publicly supported institutions, 136 (28%) from institutions that are independently controlled, and 128 (27%) from institutions with religious affiliation.

Of the 215 public institutions represented, 33 (15%) reported having only non-faculty, 35 (16%) both faculty and non-faculty, none faculty only, and 147 (68%) no unions. Among the 136 private non-sectarian institutions, there were 38 (28%) with non-faculty unions only, 3 (2%) with both faculty and non-faculty unions, none with faculty unions only, and 95 (69%) without unions. Among the 128 church-related respondents, 12 (9%) had only non-faculty, none had both faculty and non-faculty, 5 (4%) had only faculty unions, while 111 (87%) had no unions.

The 83 institutions having only non-faculty unions included 33 public, 38 private, and 12 church-related institutions. The 38 institutions which reported both faculty and non-faculty unions included 35 public and 3 independent institutions, while the 5 institutions with only a faculty union were all church-related. The 43 institutions with faculty unions have an aggregate total of 23,031 faculty.

Of the 353 institutions with no unions on campus, 18 reported appreciable faculty and non-faculty unionization activity, 25 appreciable activity among faculty, and 27 appreciable activity among non-faculty employees. Fifteen of the 83 institutions with non-faculty unions reported appreciable faculty unionization activity. None of the five institutions with only faculty unions reported non-faculty unionization activity.

There are more than 40 different unions representing employees at the 121 institutions with non-faculty unions. The American Federation of State, County and Municipal Employees (AFSCME) was the most "popular" union, with bargaining units on 35% of the campuses--and not infrequently more than one unit per institution. In order of decreasing frequency, AFSCME was followed by the Service Employees International Union (SEIU) on 22% of the campuses, and the International Union of Operating Engineers (IUOE) on 17% of the campuses. Other unions were observed less often than those listed; the same order of frequency obtained whether there were both faculty and non-faculty or only non-faculty unions on campus.

All the faculty unions were represented: AAUP, AAUP-NEA, AFT, NEA, as well as independent agents. The most frequently observed union was NEA, with units on more than 25% of the campuses.

Survey Results

This preliminary report examines only those questions pertaining to perceptions of the bargaining relationship and on goal-achievement from the perspective of the college or university administration. In particular, the focus is on those aspects which significantly differ for faculty and non-faculty relationships.

With respect to process and outcome in collective bargaining, the most notable trends (Table 1):

- 38% of respondents with faculty, but fully 59% with non-faculty, unions see the respective union negotiators as skilled and well-prepared for bargaining;
- 78% of respondents with faculty, but only 57% with non-faculty, unions believe that union leaders try to weaken the power of the administration;
- 75% of respondents with faculty, but only 51% with non-

faculty, unions believe that union leaders distrust officers of institutional administration;

conversely

- 52% of respondents with faculty and 41% with non-faculty unions believe that institutional administrators distrust union leaders; nonetheless,
- only 16% of respondents with faculty and 12% with non-faculty unions believe that relations between union leaders and administration officials are hostile; and further
- 82% of respondents with faculty and 92% with non-faculty unions hold that administration officials and union leaders attempt to cooperate with each other as much as possible;

so that

- 57% of respondents with faculty, but 70% with non-faculty, unions felt the administration's ability to achieve its goals in bargaining with the respective union is good or better.

With respect to the evaluation of the bargaining relationship (Table 2), these trends were observed:

- 57% of respondents with faculty, but 70% with non-faculty, unions view their ability to achieve administration goals in bargaining as good to very good;
- 62% of respondents with faculty, but 78% of respondents with non-faculty, unions feel that they are able to work cooperatively with the union during the agreement;
- 44% of respondents with faculty, but 58% of respondents with non-faculty, unions see the ability of members of the unit to adjust to changes in technology as good to very-good;

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- 11% of respondents with faculty, but only 3% of respondents with non-faculty, unions view the administration's coordination of labor relations policy in dealing with the union as unsatisfactory;
- 19% of respondents with faculty, but only 8% of respondents with non-faculty, unions view the attitudes of the employees (motivation, morale) as poor to very poor;
- 26% of respondents with faculty, but only 3% of respondents with non-faculty, unions are dissatisfied with their ability to avoid legalistic maneuvering.

Goal achievement with faculty and non-faculty units (Table 3) presents some interesting contrasts. The administration was reasonably successful in bargains with both the faculty and non-faculty units on campus:

- Some 57% of respondents with faculty, and 65% of respondents with non-faculty, unions reported achieving their wage goals; however
- Only 27% of respondents with faculty unions, as opposed to 54% of respondents with non-faculty units, report achieving all non-wage goals.

Respondents with faculty unions reported they invariably were able to achieve these administration goals: academic calendar, admission standards, selection and evaluation of administrators, union security, pension and insurance benefits, and a cost-of-living clause. But they most frequently failed to achieve these administration goals: merit provisions, class size, faculty evaluation procedures, length of agreement, grievance procedures, appointment and promotion procedures, and reduction-in-force provisions.

Summary

This report has presented some preliminary results from a nation-wide survey of collective bargaining in higher education. It has been observed that respondents, themselves institutional administrators, perceive relatively hostile relationships between union and administration negotiators, marked by mutual distrust but paradoxically played out in apparent efforts at cooperation. In at least a majority of cases, respondents believe the administration is generally able to achieve its wage goals in bargaining both with faculty and non-faculty unions, but to achieve its non-wage goals in bargaining with faculty unions relatively infrequently. The issue of the role of merit in compensation is the administration goal with faculty unions achieved most infrequently.

TABLE 1: PERCEPTIONS OF COLLECTIVE BARGAINING PROCESS AND OUTCOMES WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union					*Bargains with Non-Faculty Unions*				
Process Element/Outcome	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*
WHEN THE INSTITUTION AND UNION NEGOTIATORS REACH AGREEMENT, IT IS RATIFIED BY BOTH PARTIES.										
Respondents with Faculty Unions Only	5	100%	0%	0%	0%					
Respondents with Non-Faculty Unions Only						80	35%	54%	10%	1%
Respondents with Both Faculty and Non-Faculty Unions	31	45%	39%	13%	3%	35	31%	60%	3%	6%
Total Respondents	36	53%	33%	11%	3%	115	34%	56%	8%	3%
THE UNION IS EFFECTIVE IN BRINGING UP GENUINE EMPLOYEE CONCERNS REFLECTING EMPLOYEE PRIORITIES.										
Respondents with Faculty Unions Only	4	25%	50%	25%	0%					
Respondents with Non-Faculty Unions Only						78	6%	56%	32%	5%
Respondents with Both Faculty & Non-Faculty Unions	33	12%	52%	36%	0%	36	6%	78%	17%	0%
Total Respondents	37	14%	51%	35%	0%	114	6%	63%	27%	4%
THE UNION'S NEGOTIATORS ARE SKILLED AND WELL PREPARED										
Respondents with Faculty Unions Only	5	20%	20%	40%	20%					
Respondents with Non-Faculty Unions Only						79	1%	56%	34%	9%
Respondents with Both Faculty and Non-Faculty Unions	34	15%	23%	56%	6%	37	16%	49%	35%	0%
Total Respondents	39	15%	23%	54%	8%	116	6%	53%	34%	6%
UNION LEADERS DISTRUST ADMINISTRATION OFFICIALS										
Respondents with Faculty Unions Only	6	33%	33%	17%	17%					
Respondents with Non-Faculty Unions Only						78	8%	39%	47%	6%
Respondents with Both Faculty & Non-Faculty Unions	34	12%	65%	21%	3%	36	3%	58%	33%	6%
Total Respondents	40	15%	60%	20%	5%	114	6%	45%	43%	6%

TABLE 1. PERCEPTIONS OF COLLECTIVE BARGAINING PROCESS AND OUTCOMES WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union					*Bargains with Non-Faculty Unions*				
Process Element/Outcome	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*
ADMINISTRATION OFFICIALS DISTRUST UNION LEADERS.										
Respondents with Faculty Unions Only	5	40%	20%	20%	20%					
Respondents with Non-Faculty Unions Only						79	9%	33%	53%	5%
Respondents with Both Faculty and Non-Faculty Unions	34	3%	47%	47%	3%	36	3%	36%	56%	6%
Total Respondents	39	8%	44%	44%	5%	115	7%	34%	54%	5%
UNION LEADERS TRY TO WEAKEN THE POWER OF ADMINISTRATORS.										
Respondents with Faculty Unions Only	5	40%	40%	0%	20%					
Respondents with Non-Faculty Unions Only						80	9%	41%	41%	9%
Respondents with Both Faculty & Non-Faculty Unions	35	17%	60%	20%	3%	38	16%	55%	26%	3%
Total Respondents	40	20%	58%	18%	5%	118	11%	46%	36%	7%
ADMINISTRATORS TRY TO WEAKEN THE POWER OF UNIONS.										
Respondents with Faculty Unions Only	5	20%	60%	0%	20%					
Respondents with Non-Faculty Unions Only						77	3%	42%	47%	9%
Respondents with Both Faculty and Non-Faculty Unions	33	0%	42%	48%	10%	37	3%	35%	59%	3%
Total Respondents	38	3%	45%	42%	11%	114	3%	39%	51%	7%

TABLE 1: PERCEPTIONS OF COLLECTIVE BARGAINING PROCESS AND OUTCOMES WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union					*Bargains with Non-Faculty Unions*				
Process Element/Outcome	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Number Responding*	*Strongly Agree*	*Agree*	*Disagree*	*Strongly Disagree*
RELATIONS BETWEEN UNION LEADERS AND ADMINISTRATION OFFICIALS ARE HOSTILE.										
Respondents with Faculty Unions Only	5	0%	60%	20%	20%					
Respondents with Non-Faculty Unions Only						80	4%	10%	66%	20%
Respondents with Both Faculty & Non-Faculty Unions	33	0%	10%	67%	24%	36	0%	6%	83%	11%
Total Respondents	38	0%	16%	61%	24%	116	3%	9%	72%	17%
UNION LEADERS AND ADMINISTRATION OFFICIALS TRY TO COOPERATE WITH EACH OTHER AS MUCH AS POSSIBLE.										
Respondents with Faculty Unions Only	5	40%	60%	0%	0%					
Respondents with Non-Faculty Unions Only						80	13%	65%	20%	2%
Respondents with Both Faculty and Non-Faculty Unions	34	3%	76%	21%	0%	38	13%	79%	8%	0%
Total Respondents	39.	8%	74%	18%	0%	118	13%	69%	16%	2%
THE ADMINISTRATION'S NEGOTIATORS ARE SKILLED AND WELL PREPARED.										
Respondents with Faculty Unions Only	5	40%	60%	0%	0%					
Respondents with Non-Faculty Unions Only						77	26%	68%	6%	0%
Respondents with Both Faculty & Non-Faculty Unions	34	12%	68%	18%	3%	38	16%	76%	8%	0%
Total Respondents	39	15%	67%	15%	3%	115	23%	70%	7%	0%

TABLE 2: EVALUATION OF THE BARGAINING RELATIONSHIP WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union				*Bargains with Non-Faculty Unions*			
Process Element/Outcome	*Number Responding*	*Very Good/ Good*	*As Good as Can Be Expected*	*Poor/ Very Poor*	*Number Responding*	*Very Good/ Good*	*As Good as Can Be Expected*	*Poor/ Very Poor*
THE ATTITUDES OF THE EMPLOYEES (MOTIVATION, MORALE) IN THIS BARGAINING UNIT.								
Respondents with Faculty Unions Only	5	40%	20%	40%				
Respondents with Non-Faculty Unions Only					80	39%	53%	9%
Respondents with Both Faculty & Non-Faculty Unions	32	28%	56%	16%	37	43%	49%	8%
Total Respondents	37	30%	51%	19%	117	40%	51%	8%
THE GRIEVANCE PROCEDURE.								
Respondents with Faculty Unions Only	5	60%	40%	0%				
Respondents with Non-Faculty Unions Only					80	81%	15%	4%
Respondents with Both Faculty and Non-Faculty Unions	34	76%	15%	9%	37	78%	19%	3%
Total Respondents	39	74%	18%	8%	117	80%	17%	4%
AVOIDANCE OF LEGALISTIC MANEUVERING.								
Respondents with Faculty Unions Only	5	60%	20%	20%				
Respondents with Non-Faculty Unions Only					78	69%	28%	3%
Respondents with Both Faculty & Non-Faculty Unions	33	42%	30%	27%	37	57%	41%	3%
Total Respondents	38	45%	29%	26%	115	65%	32%	3%

TABLE 2: EVALUATION OF THE BARGAINING RELATIONSHIP WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union				*Bargains with Non-Faculty Unions*			
Process Element/Outcome	*Number Responding*	*Very Good/ Good*	*As Good as Can Be Expected*	*Poor/ Very Poor*	*Number Responding*	*Very Good/ Good*	*As Good as Can Be Expected*	*Poor/ Very Poor*
THE ADMINISTRATION'S COORDINATION OF LABOR RELATIONS POLICY IN DEALING WITH THIS UNION.								
Respondents with Faculty Unions Only	5	80%	20%	0%				
Respondents with Non-Faculty Unions Only					78	79%	18%	3%
Respondents with Both Faculty and Non-Faculty Unions	32	72%	16%	12%	38	82%	16%	3%
Total Respondents	37	73%	16%	11%	116	80%	17%	3%
THE ADMINISTRATION'S ABILITY TO TAKE A STRIKE.								
Respondents with Faculty Unions Only	5	80%	20%	0%				
Respondents with Non-Faculty Unions Only					73	51%	42%	7%
Respondents with Both Faculty & Non-Faculty Unions	27	52%	33%	15%	32	44%	28%	28%
Total Respondents	32	56%	31%	13%	105	48%	38%	13%
THE ADMINISTRATION'S ABILITY TO AVOID UNNECESSARY STRIKES IN THIS RELATIONSHIP.								
Respondents with Faculty Unions Only	5	80%	20%	0%				
Respondents with Non-Faculty Unions Only					76	80%	20%	0%
Respondents with Both Faculty and Non-Faculty Unions	30	67%	30%	3%	35	71%	29%	0%
Total Respondents	35	68%	28%	3%	111	77%	22%	0%

Process Element/Outcome	Bargains with Faculty Union Number Responding	Very Good/ Good	As Good as Can Be Expected	Poor/ Very Poor	Bargains with Non-Faculty Unions Number Responding	Very Good/ Good	As Good as Can Be Expected	Poor/ Very Poor
ABILITY TO ACHIEVE ADMINISTRATION GOALS IN BARGAINING.								
Respondents with Faculty Unions Only	5	60%	40%	0%				
Respondents with Non-Faculty Unions Only					78	74%	23%	3%
Respondents with Both Faculty and Non-Faculty Unions	30	57%	33%	10%	36	61%	31%	8%
Total Respondents	35	57%	34%	8%	114	70%	25%	4%
ABILITY TO WORK COOPERATIVELY WITH THE UNION DURING THE AGREEMENT.								
Respondents with Faculty Unions Only	5	60%	40%	0%				
Respondents with Non-Faculty Unions Only					79	78%	20%	1%
Respondents with Both Faculty & Non-Faculty Unions	35	63%	31%	6%	36	78%	22%	0%
Total Respondents	40	62%	32%	5%	115	78%	21%	1%
ABILITY TO ADJUST TO CHANGES IN TECHNOLOGY.								
Respondents with Faculty Unions Only	5	60%	40%	0%				
Respondents with Non-Faculty Unions Only					79	63%	35%	1%
Respondents with Both Faculty and Non-Faculty Unions	27	41%	44%	15%	35	46%	43%	11%
Total Respondents	32	44%	44%	13%	114	58%	38%	4%
PRODUCTIVITY OF EMPLOYEES COVERED UNDER THIS AGREEMENT.								
Respondents with Faculty Unions Only	5	20%	40%	40%				
Respondents with Non-Faculty Unions Only					77	35%	53%	13%
Respondents with Both Faculty & Non-Faculty Unions	32	37%	47%	16%	36	39%	50%	11%
Total Respondents	37	35%	46%	19%	114	36%	52%	12%

TABLE 3: GOAL ACHIEVEMENT REACHED IN BARGAINS WITH FACULTY AND NON-FACULTY UNIONS

	Bargains with Faculty Union			*Bargains with Non-Faculty Unions*		
Process Element/Outcome	*Number Responding*	*All Goals Achieved*	*Some Goals Not Achieved*	*Number Responding*	*All Goals Achieved*	*Some Goals Not Achieved*
WAGE-GOAL ACHIEVEMENT IN MOST RECENT SETTLEMENT.						
Respondents with Faculty Unions Only	3	33%	67%			
Respondents with Non-Faculty Unions Only				47	68%	32%
Respondents with Both Faculty and Non-Faculty Unions	20	60%	40%	19	58%	42%
Total Respondents	23	57%	43%	66	65%	35%
NON-WAGE GOAL ACHIEVEMENT IN MOST RECENT SETTLEMENT.						
Respondents with Faculty Unions Only	5	20%	80%			
Respondents with Non-Faculty Unions Only				76	55%	45%
Respondents with Both Faculty & Non-Faculty Unions	25	28%	72%	26	50%	50%
Total Respondents	30	27%	73%	102	54%	46%

DEVELOPING NEW POLICY ON PART-TIME FACULTY: THE EXPERIENCE AT THE PENNSYLVANIA STATE UNIVERSITY

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I. INSTRUCTION

The increasing use of part-time faculty by institutions of higher education has become of concern and interest both nationally and locally. For example, results of a national study on this topic by AAUP have recently appeared in The Chronicle of Higher Education[1] and the AAUP Bulletin.[2] Discussion of other data and many of the issues associated with the use of part-time faculty are found in the recent volume of New Directions in Institutional Research.[3]

In April 1976, a Committee of the University Faculty Senate at Penn State expressed concern that use of part-time faculty was leading to increased burdens for the full-time faculty, and raised questions about the rights, status, and treatment of part-time faculty. The committee recommended that a comprehensive study of part-time faculty be undertaken.

In September, 1977, the Faculty Affairs Committee of the Senate set up a subcommittee to study the use of part-time faculty to consider the academic impact of using part-time faculty and to examine and evaluate University policies pertaining to part-time faculty.

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[1] The Chronicle of Higher Education, January 16, 1978, pp. 1, 6.

[2] H.P. Tuckman and W.D. Vogler, "The 'Part' in Part-Time Wages," AAUP Bulletin, LXIV (May, 1978), 70-77.

[3] David W. Leslie (Ed.), "Employing Part-Time Faculty," New Directions for Institutional Research (San Francisco: Jossey-Bass, Summer, 1978).

The study has been lengthy and complicated. This paper presents an overview of the subcommittee's work. The introduction continues with a brief description of Penn State and a discussion of study design. Other sections of the report analyze data-gathering techniques and discuss results of these efforts. Following a section on cost implications, a brief summary concludes the report.

Structure of Penn State

To appreciate some of the issues which will be discussed and the way data are presented, it is necessary to understand the geographical structure of The Pennsylvania State University. Penn State consists of the main campus at University Park, with approximately 32,000 students, a statewide campus system which consists of 17 branch campuses, The Behrend College at Erie, The Capitol Campus, and The Milton S. Hershey Medical Center. The seventeen branch campuses offer the first two years, or part of the first two years, of most baccalureate programs offered by the University. These campuses also offer two-year associate degree programs. The full-time student bodies at the branch campuses range from 300 at Allentown to 1,650 at Ogontz. The total full-time student body is 47,000.

Although the branch campuses are an integral part of the University, they do have certain characteristics which are similar to community colleges, such as two-year offerings and small size. As David Leslie and other investigators of part-time faculty issues have noted, part-time faculty at two-year institutions tend to be hired for somewhat different reasons and in greater numbers than at universities. At two-year institutions, more than at universities,

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part-time faculty are employed to provide breadth of offerings and flexibility for enrollment shifts. One of our purposes was to explore the differences between the University Park Campus and the branch campuses in their use of part-time faculty. For this reason, the data are generally separated into branch campus system data and University Park data. The Hershey Medical Center was not included, although a survey of departments at the College of Medicine indicated that the use of part-time faculty was small.

Another aspect of Penn State's operation which bears on the data is the term system, which is a modified quarter system. There are four terms per year. However, by having classes 75 minutes long, rather than 50 minutes long, semester credits are obtained. A typical student load is 11 credits per term. For each 3 credit course there are generally 4 1/2 contact class hours per week.

Overview of the Study

To begin the study it was necessary that we identify who would be considered as part-time faculty. The University faculty appointment categories provided a basis for this identification. These categories include:

1. Standing Appointments, which include tenure track full-time faculty positions;
2. Fixed-Term I Appointments, which include full-time tenure-ineligible positions with a specified ending date; and

3. Fixed-Term II Appointments, which include:
   - A) Appointments which are full-time but less than six calendar months or two terms; or
   - B) Less than full-time.

Personnel in these categories hold academic rank. Graduate assistants are not included.

Employees in the Fixed-Term II category were considered part-time faculty in the present study even though a very small number were full-time employees hired for less than two terms.

It was felt that comprehensive data describing the population were needed. A number of questions were posed, including:

1. How many part-time faculty are there?
2. Where are they located?
3. How are they being used?
4. What are the trends in numbers of part-time faculty employed?
5. Are they evaluated? How often? Given feedback?
6. What problems arise from the use of part-time faculty?

Several different approaches were used to gather relevant data. First, data on part-time faculty in resident education were obtained from University data files. In addition, some data on the number of courses taught for academic credit by Continuing Education lecturers were obtained in order to compare part-time faculty who teach in the two different delivery systems.

To answer questions concerning evaluation, hiring, compensation, working conditions, needs served, and duties of part-time faculty, a questionnaire was developed and distributed to heads of all academic administrative units which might hire part-time faculty. Administrators were also asked to indicate the benefits and problems associated with the use of part-time faculty.

Categories of Part-time Employees

As the work and data gathering of the subcommittee progressed, one topic which received considerable attention is the differentiation between "continuing" and "occasional" part-time faculty members. The former category includes individuals whose employment history reflects a significant and continuing relationship to Penn State. The identification of the "continuing" part-time category could serve several purposes. It would encourage both administrators and faculty to recognize the commitment in time and effort by such individuals. This recognition could suggest the possibility, if the need were present, of assigning such individuals to a variety of duties such as advising or committee work, as well as teaching and/or research. It could encourage longer term financial planning in the use of some part-time faculty so that contracts could cover three terms instead of one at a time. It could also encourage high-quality, part-time faculty members to strengthen their ties and commitment to Penn State. The University could recognize the service and commitment of these individuals by providing certain faculty rights and benefits accorded to full-time faculty.

The definition which the committee ultimately adopted for the "continuing" category takes into account three components: a continuing relationship with Penn State; a significant relationship; and cost. A continuing relationship was associated with being employed three terms out of four for at least two successive years. A significant relationship was associated with being employed half-time or more. The combination of these two factors substantially reduced the number of part-time faculty who would qualify to be in the "continuing" category, thereby holding down possible costs of fringe benefits. It was recognized by the committee that the criteria for the "continuing" category are, to some degree, arbitrary and are likely to exclude deserving part-time faculty. Nonetheless, compromises were considered necessary in order to hold down possible costs. The above definition seemed to the committee to be suitable for meeting the different requirements.

Data were gathered from University files to find out how many part-time faculty are employed 50 percent or more and how many would fit the "continuing" category. It was also decided that input from part-time faculty who are employed 50 percent or more would be desirable. A second questionnaire was prepared and distributed to a selected group of these part-time faculty. Finally, cost estimates for providing fringe benefits to "continuing" part-time faculty and other classes of part-time employees were made.

II. USE OF UNIVERSITY COMPUTER FILES IN THE STUDY

Based on the general charge given to the subcommittee and issues being addressed nationally the following research questions were developed. They represented the consensus of the group as to what the major issues were with respect to the definition and use of part-time faculty:

1. Which employees are included within the set of faculty identified as part-time?
2. What are the demographic characteristics of part-time faculty in terms of age, sex, and location of employment?
3. How is their proportion of full-timeness determined?
4. What are the primary uses of part-time faculty?
5. What is the workload of part-time faculty who teach?
6. What policies govern the promotion of part-time faculty who demonstrate a continuing commitment to the University?
7. Do College Deans and Campus Directors have policies which guide the salary increases of part-time faculty being reappointed?
8. What fringe benefits and other perquisites are provided to part-time faculty?
9. What is the impact of the use of part-time faculty on the workload of full-time faculty?
10. Are the professional opinions and attitudes of part-time faculty included in departmental deliberations on such issues as curriculum development and student advising?

11. How does the use of graduate assistants at University Park impact on the use of part-time faculty across the University?

The subcommittee was aware that no file or set of files within the University could answer all of these questions. Some of these questions could be dealt with by surveying academic administrators and part-time faculty members, while the remaining questions could be adequately answered by programming against existing University files. This section provides a discussion of the approach to, and the results obtained from, using existing University files.

Initial Constraints on System Development

Due to time and resource constraints it was decided not to build longitudinal files to respond to the questions. The Fall Term, 1976, was selected for analysis because it represented a heavy-load term across the University, would reveal the most extensive uses of part-time faculty, and was the most recent Fall term for which complete data were available.

Some measure of longitudinality was desired, and the University's personnel folders were examined to determine which terms the Fall, 1976 cohort worked between the Summer, 1974 through Spring, 1977.

File Development

Programs were written against the University's payroll files to determine the persons to be included in the cohort. A file with one record for each person selected was created from the payroll pass. The record contained basic demographic data on the individual, e.g., age; sex; college, department, and location in which hired; academic rank; and year in which the individual was initially employed by the University. The data were edited for completeness, and with the assistance of the University's Personnel Procedures division missing data were gathered and inserted into the records.

The resulting file was then matched against two activity files maintained by the University's Institutional Research Division. The instructional activities file contains a record for every resident education section, or part of a section, taught by any individual within the University. Course credit and student hour data were extracted from the file and summarized by course level. The number of sections and the number of different courses taught were also extracted and entered into the record by course level.

In the second match step of the file building process faculty activity and full-time-equivalent (FTE) data were extracted from the Faculty Activity Report file. Faculty activity data are in the form of average hours per week worked in seven different categories of activity, i.e., class contact, class preparation, other instructional support, departmental research, organized research, public service, and other university service. The FTE data represent the proportion of salary received from resident education funds and other funds. The proportions are prorated downward to reflect the fraction of full-timeness which the part-time faculty member worked.

Data Analysis

An extensive report generator program was written against the file to give various displays of the data. The reports were quite voluminous and it was decided that the primary messages contained in the reports could best be shown graphically. The data were summarized and run through the generalized graphics package developed by the Institutional Research Division at Penn State. The subcommittee was then able to deal with the graphs and a minimum amount of text material in grasping the main points of emphasis revealed by the computer-produced reports. The main questions to which the data responded were:

1. How many part-time faculty members were there, and where were they located?

There were 398 faculty selected for the study. One-hundred and fifty-five were hired at University Park and 243 were hired at the Branch Campuses. Of the University Park faculty, 56.8 percent were on a contract calling for a full-time equivalent effort of .50 or greater. In comparison 28 percent of the faculty at the Branch Campuses had similar effort-level contracts.

2. How were they concentrated by hiring department?

Hiring department was defined as the home budget and location of the hiree. It was found that most departments hired few part-time faculty, as Table 1 shows. There were 229 departments which hired at least one part-time faculty member; only six departments hired more than five in the Fall Term, 1976, with the English Department at University Park hiring 21.

Table 1

Distribution of Departments Hiring 1, 2, 3, 4,
or 5 Part-Time Faculty, Fall, 1976, by
University Park and Branch Campuses

	Number of Part-Time Faculty Hired				
Location	1	2	3	4	5
University Park	34	13	5	4	4
Branch Campuses	127	22	7	5	2
Total	161	35	12	9	6

3. What were their assignments?

Of the 398 faculty, 93 percent were paid wholly from resident instruction funds during the term. That includes all 243 faculty at the Branch Campuses, and 83 percent of the faculty from University Park. There were 25 faculty at University Park who were not paid from resident instruction funds. Their concentration of activities was in the organized research areas.

There were 353 part-time faculty who taught during the term. Ninety-seven percent of the Branch Campus faculty taught while seventy-four percent of the University Park faculty taught. Ninety-three percent of all their instruction occurred at the undergraduate level.

It became of specific interest to the subcommittee to determine the workloads of faculty with an FTE of greater than or equal to 50 percent. Thirty-six percent of the faculty who taught were on such contracts. Their workload was measured by class contact hours per teaching faculty member, course credits per teaching faculty member, and student credit hours produced per teaching faculty member. Those data are shown in Table 2 for all the groups of interest for Fall Term, 1976.

Table 2

Workload Indices For Teaching Part-Time Faculty

Location	FTE	Class Contract Hrs/Faculty	Course Credits/ Faculty	Student Credit Hours/ Faculty
University	< 50%	5.4	2.5	98.3
Park	≥ 50%	9.9	5.0	131.8
Branch	< 50%	5.3	3.1	88.0
Campuses	≥ 50%	10.9	6.3	169.3

4. How many part-time faculty showed a continuing commitment to the University?

Thirty-three faculty fit the definition of half-time or more in the Fall of 1976 and for at least three terms in each of the two previous fiscal years. However, only twenty-nine of those faculty worked three or more terms during the 1976-77 year and would be the faculty to be considered in the event a classification of "continuing" part-time faculty was adopted.

5. How does the use of graduate assistants for instruction at the University Park relate to the use of part-time faculty at the Branch Campuses?

A program was written against a separate file to determine the activity of graduate assistants who teach. The output showed that there are approximately two-and-a-half times as many graduate assistants as part-time faculty and that those graduate assistants are employed almost exclusively at University Park. The number of section assignments given to graduate assistants is greater than for part-time faculty, but the faculty teach larger sections. This may be accounted for by the fact that graduate assistants are involved in more team teaching activities than part-time faculty and that section size cannot be adequately measured in this case because of the nature of the collection mechanism.

III. SURVEY OF ACADEMIC ADMINISTRATORS

During the Winter Term, 1978, the subcommittee prepared a questionnaire regarding employment practices and policies for part-time faculty members. The 31 item questionnaire was distributed to the academic administrator of each academic department or equivalent at University Park, and to the director or dean of each of the University's branch campuses. Responses were received from all of the non-University Park locations. All of these locations utilize part-time faculty members to some degree. At University Park, 96 questionnaires were distributed and 81 (84 percent) were returned. Forty of the 81 responding units indicated that they had employed at least one part-time faculty member since Fall Term 1976.

The questionnaires were tallied and analyzed according to two clusters: (1) the branch campuses, including the 17 Commonwealth Campuses and Behrend College; and (2) all responding academic units at University Park.

The discussion which follows is divided into four sections: (1) recruitment and hiring; (2) duties and responsibilities; (3) evaluation and promotion; and (4) special issues. For this report the special issues section is limited to the determination of the percent of full-time equivalence for part-time faculty members.

Recruitment and Hiring

There are no standard University, college, department or campus procedures for recruiting and hiring part-time faculty members. However, position specifications are typically prepared prior to recruitment of part-time faculty at both University Park and the branch campuses.

Recruitment sources for hiring part-time faculty are not especially different for University Park and the branch campuses. Personal contacts, files of applicants, and files of previous temporary employees are the most frequent sources. Infrequent sources are various types of advertising--internal posting, professional society publications or meetings, newspapers, or graduate school contacts.

Three areas in which there appears to be a distinction between practices at University Park and branch campuses include the purposes for which part-time faculty are hired, the availability of qualified part-time faculty, and the basis for determining part-time salaries. Across the University part-time faculty are hired for a variety of reasons. At University Park, only one-third are recruited to meet the "continuing (term after term) needs in a specific area." At the branch campuses, approximately 80 percent of the part-time faculty are hired to meet "continuing" and "intermittent but recurring needs." Respondents from the branch campuses also indicated that they are more likely to have difficulty in recruiting part-time faculty (campuses--72 percent; University Park--44 percent). Other data collected by the subcommittee suggest that at least some of the variance between the need for part-time faculty members and the difficulty in recruiting part-time faculty members is accounted for by the use of graduate assistants at University Park.

With respect to salary, 80 percent of the respondents from the branch campuses indicated that a predetermined "flat rate" is the basis for determining the salaries of part-time faculty members. At University Park, only 50 percent of the respondents indicated use of a flat rate salary; the other 50 percent indicated that salary is based on such factors as previous experience, academic qualifications and required duties.

Duties and Responsibilities

More than two-thirds of the part-time faculty members hired at University Park are assigned primarily to teaching. Another 15 percent are assigned primary duties in research. At the branch campuses, 99 percent of the part-time faculty are assigned primary duties in teaching.

Because the preponderance of part-time faculty members are hired in instruction, a series of items in the questionnaire was written specifically for part-time faculty with teaching responsibilities. The first of these items was concerned with the types of courses taught by part-time faculty. At both University Park and the branch campuses, it appears that part-time faculty are most frequently assigned to (a) "service" courses and (b) courses intended primarily for undergraduate program majors. There is only a very limited use of part-time faculty at University Park to teach upper division-graduate and graduate courses; at the branch campuses, part-time faculty teaching assignments also frequently include associate degree program courses. Part-time faculty members at both University Park and the branch campuses are expected to be available to students beyond class time but not necessarily to maintain specific office hours. The latter is more apparent at the branch campuses where the availability of office space is extremely limited or nonexistent on some campuses.

One questionnaire item requested respondents to indicate the frequency with which part-time teaching faculty participate in course content selection or design, the choice of course texts, and the scheduling of time for classes. According to the academic administrators responding, participation by part-time faculty at University Park with respect to course content design and choice of texts runs the full gamut from "usually" to "never." For the branch campuses, participation in curricular decisions is rare. The University Park respondents continued to report considerable diversity in the range of part-time faculty participation in the scheduling of class times. By contrast, 83 percent of the respondents from the branch campuses indicated that the decision when to offer a class is likely to be an issue of consultation between the administrator and the part-time faculty member. This difference between University Park and the branch campuses may be an indication that the campuses are more likely to utilize part-time faculty members who are otherwise employed during the normal working day and are hired to teach at a particular time, while at University Park there is a greater availability of academically qualified individuals who are not working on a full-time basis and are able to meet classes at a time scheduled by the department.

Another questionnaire item was concerned with the working conditions and various services available to part-time faculty members. Generally, part-time faculty at the campuses reportedly are provided with needed materials and supplies, secretarial services, and parking space, have access to telephone service, and are included on the circulation or mailing list of the campus. The major problem identified is the availability of office space with desks at the campuses; yet administrators suggest that even these are available to the majority of part-time faculty members. At University Park, the only service which respondents indicated is available to all part-time faculty is the provision of needed materials and supplies. The least likely perquisite available to part-time faculty at University Park is inclusion on the mailing list of the department, although this is still available to all or most part-time faculty members in better than 75 percent of the responding units.

At University Park, 95 percent of the responding administrators indicated that working conditions are adequate. The percentage regarding working conditions as adequate the branch campuses was 83. In section IV, of this report, analyses of the adequacy of working conditions and other aspects of employment considerations from the perspective of some part-time faculty members are presented.

Evaluation and Promotion

The third broad area explored by the questionnaire was performance evaluation and prospects for professional promotion. The questionnaire responses received suggested that part-time faculty are evaluated as a regular practice at the branch campuses and to a slightly lesser degree at University Park. The most usual form of evaluation is through written student course evaluations. Ninety percent of both the campuses and University Park respondents also indicated that they periodically rely on verbal feedback from students and other faculty members for evaluation and upon direct observation of the part-time faculty member's work.

All but one of the campus respondents indicated that the results of the evaluation are usually communicated directly to the faculty member. Approximately half of the campuses conveyed this information in writing, while the other half scheduled a conference between the faculty member and the administrator. At University Park, approximately two-thirds of the respondents indicated that evaluation results are conveyed to part-time faculty members during specially scheduled conferences. Written reports are utilized much less frequently. Part-time faculty perceptions of evaluation, reported on in the next section, were quite different from those of academic administrators.

All part-time academic appointments at the branch campuses are made at the rank of lecturer. The campus administrators reported that within the past five years there have been no reappointments at a higher rank. The University's promotion and tenure policy, cost, and other policy considerations at the department, division, or campus level were cited as significant factors in the determination not to consider part-time faculty for promotion.

At University Park, the most frequently utilized academic title for those units reporting was instructor (approximately 65 to 70 percent). Another 20 percent of the part-time academic personnel at University Park were appointed as research assistants and lecturers. There have been five reappointments at a rank higher than the initial appointment within the past five years. The most significant reasons given for not usually considering part-time faculty members for promotion includes: a) inadequate academic credentials, b) activities not appropriate, and c) level of commitment to the job.

Special Issue

One requirement in the University's faculty activity reporting system is that a full-time equivalence (FTE) be reported by the administrative unit for all part-time faculty. This FTE may be assigned by the department, the college, or the campus administration.

The subcommittee's questionnaire asked academic administrators to explain briefly how these FTEs are determined. These responses are summarized in Table 3. Approximately half of the respondents from University Park indicated that there is clearly no standard procedure or formula for calculating the full-time equivalence. The remaining respondents reported a wide range of procedures for arriving at part-time faculty FTEs. The responses from campuses other than University Park indicated that there is a greater tendency toward uniformity in the calculation of these FTEs, although considerable variance still exists. The major problem is determining an equivalence for instructional part-time faculty members. The range for one three-credit course is from .20 FTE to .50 FTE. The trend appears to be that one three-credit course equals between .30 and .35 FTE.

As noted above, one premise being considered is that in order for a part-time faculty member to establish "continuing" employment with the University, it would be necessary for the faculty member to be employed by the University over a specific number of academic terms at a full-time equivalence of 50 percent or greater. If this premise is to be accepted, it is important that more uniform conventions be applied to the computation of full-time equivalences and their application to part-time faculty at Penn State.

Table 3

"Formulas" Utilized for Computing the Full-Time Equivalence (FTE) of Part-Time Faculty Appointments

	"Formula" Employed	Number of Respondents
University Park	No formula	20
	Determined in relation to the load of a full-time faculty member	6
	By the number of courses assigned	2
	In relation to research project	2
	Hours per week in teaching and preparation divided by 40	1
	Three-credit course equals .50 FTE	2
	Three-credit course equals .40 FTE	3
	Three-credit course equals .38 FTE	3[a]
	Three-credit course equals .35 FTE	1
	Three-credit course equals .30 FTE	1[b]
Other Campuses	Determined in relation to the load of a full-time faculty member	1
	Three-credit course equals .38 FTE	2[a]
	Three-credit course equals .35 FTE	2[c]
	Three-credit course equals .33 FTE	8[d]
	Three-credit course equals .30 FTE	3
	Three-credit course equals .25 FTE	2
	Three-credit course equals .20 FTE	1[e]

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[a] Equivalent of 24 course credits for three terms.

[b] Three-credit clinical course equals .50 FTE.

[c] One campus reports that two three-credit courses equal .50 FTE.

[d] One campus reports that three three-credit courses equal .95 FTE.

[e] Two three-credit courses equal .35 FTE; three equal .50 FTE; four equal .60 FTE.

IV. SURVEY OF PART-TIME FACULTY

Early in our deliberations the subcommittee planned to develop a questionnaire to send to all part-time faculty at Penn State. This strategy was revised as the questionnaire grew in length and complexity and the large number and intermittant or transient employment patterns of some part-time faculty became apparent. First, the data obtained from the University files and from the academic administrator questionnaires enabled the subcommittee to reduce the number of items needed on the part-time faculty questionnaire. Second, the cost and labor involved in administering a second questionnaire were kept within reasonable bounds by significantly reducing the number of part-time employees sent the questionnaire. The population was limited to those individuals employed on a half-time or greater part-time basis during the target term--Fall, 1976--who would have met the criteria developed for classification as "continuing" part-time employees by the end of the 1976-77 academic year.

Thus, the questionnaire data presented in this section reflects the responses of a comparatively small portion of the part-time faculty at Penn State. Twenty-nine individuals were identified as meeting the requirements for inclusion in the population. Twenty-eight of these people were contacted; twenty-five of the twenty-eight responded.

Since a number of the same or similar items were also presented to the administrators, comparisons of the responses of the two groups on a number of issues were possible. For the most part they were in agreement. However, there were some discrepancies which will be pointed out.

Summary of the Questionnaire

The twenty-five respondents included fifteen women and ten men. Eight of them had earned doctorates, thirteen had master's degrees and four had baccalaureate degrees. Twelve worked at the University Park Campus; the other thirteen were scattered at eight other locations. Twenty-two of the twenty-five held lecturer or instructor ranks; two were assistant professors and one was a research associate.

The mean number of consecutive years that the respondents have held a part-time academic appointment at Penn State was 5.6 years, with the range being two to thirteen years. They reported holding half-time or greater part-time positions for an average of 4.2 years.

Twenty-four of the twenty-five listed teaching for academic credit as their primary duty. The twenty-fifth was associated with the cooperative extension.

Most respondents indicated that they were involved in course design and in choosing the texts for the courses they taught. Eighteen of the twenty-five indicated that they scheduled regular office hours in which to see students, averaging four hours per week (range: one - twelve hours).

Many of the respondents reported that they participated in non-teaching activities, too.

- Nine did academic advising.
- Twenty indicated that they were permitted to attend faculty meetings, although only ten were allowed voting or other faculty privileges at these meetings.
- Almost half had the option or expectation of serving on departmental committees.
- Two supervised master's or doctoral theses.
- Ten indicated that they used University facilities for the pursuit of individual research, although several of these respondents indicated that they did the research on their own time.
- A number also indicated that they participated in various scholarly and professional activities in addition to their teaching. For instance:

  Eleven reported that they had published journal articles or books;

  Six had authored research proposals and written or oral research reports;

  Seven have held offices in professional organizations; and

  Ten have given invited presentations to professional groups.

Part-time faculty members are appointed almost exclusively to the lowest ranks. This seems to reflect a general policy decision at the department and/or college level. As indicated in the previous section, no Universitywide policy or procedure precludes the appointment of deserving part-time faculty to a higher academic rank. Since a number of our respondents report having an earned doctor's degree and gave evidence of having demonstrated ability as a teacher, growth in scholarship and a long-term commitment to the University, their lack of promotion does not appear to be due to the three reasons cited most often by the administrators for not considering part-time faculty members for promotion: (1) inadequate credentials; (2) activities not appropriate; and (3) level of commitment not great enough.

This questionnaire also included several items regarding the evaluation of part-time faculty members' performances. Although half of the respondents believed that they were being evaluated, 60 percent reported that they did not receive any direct feedback about their performance from their administrative supervisor or from their colleagues. It is with regard to the topic of evaluation, and particularly the direct communication of their evaluation by administrators to the part-time faculty, that the administrators and part-time faculty members' responses to the questionnaires were in greatest disagreement.

In response to an item concerning pay raises, ten of the twelve faculty employed at University Park reported receiving raises within the previous three years. Only five of the thirteen branch campus employees received any raise during that time period. Thus our respondents' experiences were consistent with the conclusion reached in an analysis of the administrators' responses--that the prospect of receiving a salary increase is considerably greater.

Finally, the respondents were asked two open-ended questions: (1) What things did/do you like most about your part-time position at Penn State? and (2) What things did/do you like least about your part-time position at Penn State? When the responses to these questions were inspected, it became apparent that there were some noticeable differences between the responses of the men and the women. A consideration of other differences between the two subgroups suggested that two factors in particular may have influenced the responses to these two questions.

First, it was noted that nine of the ten men held another full-time paid position concurrently with their part-time employment at Penn State. Fourteen of the fifteen women did not. Second, 60 percent of the women were employed at the University Park Campus while only 20 percent of the men were employed here. With these differences in mind, the remainder of this section briefly summarizes the respondents' answers to the two questions.

There were few notable group differences between the men and women in regard to what they liked. Most frequently mentioned by both groups were an enjoyment of teaching and interaction with students, flexible working hours, the stimulation of working in an academic environment and interacting with other faculty members, and the good facilities available to them.

However, there were quite different responses regarding what was liked least by the two groups. The men cited low pay most often, although four voiced no complaints at all. The women's responses suggested that they were much less satisfied with their employment situation. Although they too cited low pay or lack of raises most frequently, they mentioned the lack of fringe benefits almost as often. Also mentioned frequently were dissatisfaction with the unrealiability or last-minute nature of reappointments and a belief that they often put in more time and effort than was reflected in the percent of full-time equivalence for which they were hired. A number also complained about a lack of satisfying interaction with full-time faculty members and mentioned feeling ignored, unvalued or treated like "second-class citizens."

Because these women's part-time positions were their only paid employment in all but one case, and they reported spending more time and effort on their jobs than their "moon-lighting" male counterparts, it is possible that they may have depended on their part-time position more heavily than the men did as a primary source of career satisfaction. If so, it is not surprising that they reported more discontent than their male peers when their expectations of being valued and accorded professional status did not materialize.

It is also possible that part-time positions at University Park, where the majority of the women were employed, provided less satisfaction than those at the Commonwealth campuses, particularly in terms of interactions with the full-time faculty.

V. COST CONSIDERATIONS

Since two of the related subjects for resolution by the subcommittee were (1) the identification of a group of "continuing" part-time faculty as distinguished from "occasional" part-timers.

and (2) the introduction of fringe benefits to this new class of employees, it was necessary to determine the fiscal considerations inherent in adoption of such a proposal. Prior to conducting cost analyses, several other considerations need to be discussed.

First, under Title IX regulations there is no requirement regarding the granting of benefits or special rights to part-time employees unless it can be shown that females are represented disproportionately among the part-time employees. A study of Penn State's part-time faculty determined that about 68 percent were males. Based on this finding we did not conclude that part-time faculty members were used as a "place for females." If a disparity were found, it would have been necessary to grant fringe benefits to part-timers long ago.

Secondly, although the major emphasis of this study has been in regard to part-time faculty members, Penn State has consistently treated all classifications of employees similarly in regard to fringe benefits. Therefore, if such fringes are to be granted to part-time faculty members, it would be consistent to grant similar fringes to all other classifications of employees. In that regard, by far the largest classification group of part-time employees at Penn State is the clerical classification category.

A third consideration has had to be the dwindling fiscal support in higher education. "What can we afford?" has become a more common goal for all of us. If there are limited dollars, how should they be spent? Can we afford to adequately take care of the regular full-time faculty and staff members in both salary and fringes and, at the same time, add benefits for part-time employees. That becomes a practical consideration rather than a theoretical philosophy.

The subcommittee examined each fringe benefit offered to the regular full-time faculty and staff. Included were the health insurance package including major medical insurance, life insurance, retirement, tuition remission for both employees and their eligible dependents (75 percent of Penn State's tuition for courses taken at Penn State), sabbatical leaves, graduate study leaves, vacation, sick leave, holiday pay, and so forth.

How to calculate the cost of some of these benefits for part-time employees was quite simple in some cases. For example, retirement contributions are directly related to salary. The level of life insurance one can carry is also related to salary.

Some other benefits required more special attention. For example, should someone who provides half-time service receive the same free health insurance that another employee works full time to receive. The subcommittee concluded that part-timers should pay 50 percent of the cost.

The tuition remission for employees and their dependents caused a different problem. Penn State's policy is extremely liberal and costly. The debate, therefore, was not so much a matter of how to calculate costs but, rather, should this benefit be granted to part-timers. To equate half time to full time we looked at one-half the benefit. In other words, a 37 1/2 percent of tuition benefit rather than a 75 percent benefit.

Prorating costs for those benefits peculiar to nonacademic employees was handled by calculating hours worked. Penn State employs a 40-hour week which averages 173 hours per month. Sick leave and vacation are earned on a monthly basis by regular full-time employees. Accordingly, 168 hours were selected as a base and costs were calculated based on an employee earning a unit of vacation or sick leave for each 168 hours worked.

"Is pay to be equated and how?" becomes yet another question in calculating costs. This is not difficult for the classified jobs. The duties of each job can be evaluated, placed in a grade and the appropriate rate can be established.

To calculate a projected cost, the median hours worked by eligible part-timers for each general classification category were calculated. The median unit rate actually paid was determined, and the median unit rate paid to full-timers in that general classification category calculated. By multiplying the median hours worked by the median rate paid to full-timers a projected base was established. The difference between the base and the dollars actually paid represented the projected cost difference.

However, for faculty it is not as easy. First, there is no standard definition of full time. Also, many of the faculty responsibilities performed on a part-time basis are performed differently than on a full-time basis. For example, a full-time faculty member may be responsible for teaching, counseling, scholarly activity, departmental service, plus research and other duties. A part-time faculty member may just teach. Each position has to be looked at as it relates to full time. Since Penn State does not have scales or ranges for faculty salaries, it adds another difficult dimension for establishing costs.

A general examination of part-time faculty rates paid indicated that generally they are not far out-of-line with lower level full-time faculty rates. Therefore, because of the variables, we chose not to calculate a cost for faculty salary adjustments.

One final precaution--the definition used for permanent or continuing part time can greatly influence costs. The subcommittee started with a basic definition of permanent part time to mean at least one-half time for at least 36 weeks in a year. During calendar year 1977, there were 639 people who would have qualified; 308 of these also would have qualified in calendar year 1976, and 123 of the same group would have qualified in calendar year 1975.

In other words, using as our definition at least half time for at least 36 weeks in a year and evidence of having met those requirements for two years to qualify for benefits, Penn State would be dealing with 123 individuals instead of 639. Stated another way, the additional costs would be less than one-fifth of the costs compared with a definition permitting fringes with one year of service. In Penn State's case, that is one quarter of a million dollars per year versus $1.25 million per year in cost.

While one quarter of a million is not a large sum in relation to the budget for a University of Penn State's size, it is an appreciable amount to consider when budget short falls are common at many institutions.

One other issue discussed by the subcommittee in regard to fringe benefits was: "Should the fringe benefits be optional or mandatory?" Certain fringes are mandated by law, such as Penn State's retirement system and federal social security. Regular full-time employees are required as a condition of employment to participate in the insurance programs. It is the opinion of the subcommittee, however, that, where feasible, the fringes should be optional for part-timers because, for some, the part-time work is a second job; others enjoy coverage in such programs through their spouse's employment.

VI. SUMMARY

The subcommittee has learned a great deal in the year of study on part-time faculty. One point needs to be emphasized. Part-time faculty play a very important role in helping Penn State fulfill its educational objectives. Although one of the original tasks was to investigate the "excessive" use of part-time faculty, no pattern of "excessive" use was suggested by the data and no restrictions on the use of part-time faculty is being recommended.

There is also much diversity in the use of part-time faculty. On one branch campus only one part-time faculty member was employed, while on another campus 20 percent of the student credit hours were generated by part-time faculty. At University Park, the English Department was the largest user of part-time faculty by a wide margin.

There are a small number of part-time faculty who work year after year half time or more--the "continuing" part-time category. Most of the part-time faculty do not fit the continuing category either because they work less than half time or because they have not worked half time or more for more than two years.

The final stage of subcommittee work is to prepare a report for submission to the University Faculty Senate. Included in the report will be proposals for two new appointment categories for part-time faculty. These categories parallel the two categories of full time academic appointments: Standing Appointments and Fixed-Term I Appointments. The new Fixed-Term I Appointment would apply to those part-time faculty members who are in the "continuing" category. The part-time Standing Appointment would be of potential use to full-time faculty members approaching retirement, to departments that need a regular faculty member less than full time, or to an individual with special needs to be less than full time.

Fringe benefits will be recommended for employees in these job categories. Other rights and privileges of regular faculty will also be considered, including such items as evaluation, promotion, tenure, sabbatical and other leaves, and membership in the Faculty Senate. For the most part, these recommendations are modeled after the full-time equivalent positions.

It should suffice at this stage of the study to repeat the conclusion made by David Leslie that "if this inquiry has clarified anything, it should have pointed out the need to disaggregate and to resist generalities in treating the issues (regarding) part-time faculty."[4]

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[4] David L. Leslie, op. cit., p. 15.

FINANCIAL AID AND THE MIDDLE INCOME SQUEEZE

John Maguire
Boston College

I. Introduction

Despite solid evidence that a diminishing fraction of the typical family budget is now being expended on higher education, there can be no doubt that many parents are becoming increasingly concerned over escalating college costs. Federal and state governments have responded to this perceived crisis in educational financing with multi-billion dollar aid programs geared mainly, though not exclusively, toward low-income families. Recently a study prepared by the College Board indicated that middle and upper-middle income families were even less willing than their lower income counterparts to pay proportional shares of college costs for their children. This reluctance has been further documented by the Consortium on Financing Higher Education, which found that the enrollment rate for applicants to some of the nation's most prestigious schools was especially low among middle-income families. Current proposals in Congress, calling for tuition tax credits and middle-income Basic Educational Opportunity Grants, seek to redress this so-called "middle-income squeeze."

II. Boston College

Boston College, a Jesuit university in Chestnut Hill, Massachusetts, has a student body of approximately 8400 undergraduates, with about 40 percent receiving some form of financial assistance. Compared to many of her major independent competitors, total tuition, room, and board figures are several hundred dollars below average. However, scholarship endowment and discretionary institutional financial aid are also low, with the result that the University supports what might be termed a "conservative" pricing policy. Consequently, in recent years the undergraduate student body has typically included 2000 to 2500 students with aid packages averaging $1500 less than levels recommended by the need analysis system of the College Scholarship Service. This means that Boston College undergraduates have a cumulative CSS evaluated need gap (unmet need) in excess of $3,000,000. To compound this, the typical Boston College family, when asked to estimate its financial need on the school's aid application, will over-state this deficit by an average of $500. Thus this subgroup of families behave at the institutional level in a manner consistent with the national findings of the College Board.

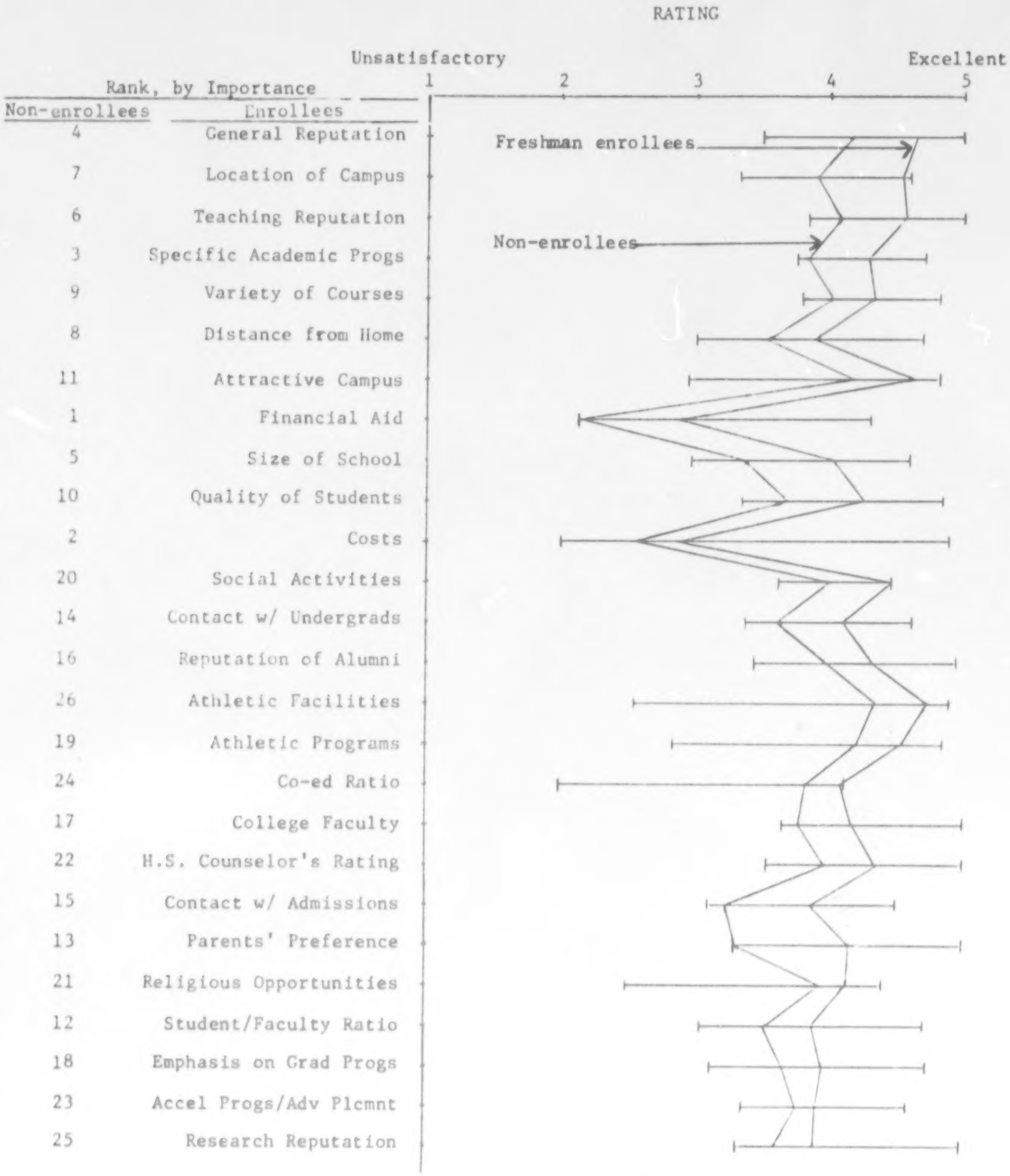
And yet the vast majority of these young men and women, despite occasional incidences of fraud on the one hand and extreme hardship and extraordinary sacrifice on the other, persist through graduation. This paper will summarize how these students view the aid program at Boston College and how they adjust to their circumstances.

III. Market Research on Financial Aid

In order to understand the major factors influencing the decisions of students to come to Boston College as freshmen and to persist through graduation, marketing questionnaires are distributed annually to enrollees, accepted non-enrollees, persisters, and dropouts. Figure 1 summarizes some of the data resulting from the 1976 study of accepted freshmen. On one axis are listed in descending order of importance the factors most influential in the choice for or against Boston College, while a qualitative scale averages applicant evaluations (1=unsatisfactory, 5=excellent) on the other axis. Without fully interpreting the substantial amount of data contained on this graph, it is apparent the Boston College's financial aid program is qualitatively rated the lowest among all characteristics, while non-matriculants

Figure 1

STUDENT FACTOR RATINGS -- ACCEPTED B.C. APPLICANTS (CLASS OF 1980)



rate it the most important single influence on their decision not to attend. In addition, multiple discriminant analysis verifies that, even at the subliminal level, financial aid rating is the best single predictor of who will and who will not come to Boston College. Finally, a comprehensive retention study has revealed that finances are a significant motivator toward dropping out of Boston College. (Factor analysis interjects a cautionary note here, however, since there is a correlation between "Lack of Motivation" and "Financial" which suggests that socially acceptable financial reasons sometimes are used as rationalizations.)

Based on these results, Boston College has increased considerably its commitment of discretionary financial aid to freshmen entering in 1978. The positive effect on class quality and yield (percent accepted who enrolled) was significant, and partly because of this experiment, the university has already doubled funding levels for future entering classes.

IV. Responses to Financial Aid Offers

Boston College has collected data on approximately 10,000 aid applicants to the classes of 1975-77 in order to understand how candidates respond to offers of financial assistance. Table I displays the "yield" data for this large group, who cover the whole spectrum of possible needs and awards. Although this data is idealized somewhat for modelling purposes, it is an accurate representation (except at high needs) of the actual situation.

The term "Gap" in the Table is defined simply as the difference between need and total aid from all sources allocated by Boston College. In other words "gap" is unmet need, or the amount by which a student in a given category is underfunded. All data are displayed as averages, when actually they represent different intervals--the intervals for need being $1,000 and the intervals for "gap" being $500. The assumption (which proves valid because of the large number of data involved) is made that in all cases the average is the midpoint of each interval.

The complexity of the above discussion should not be allowed to cloud the extraordinary conclusions which can be drawn from Table I. There is little reason to expect that a large group of financial aid recipients should respond in anything like the way they do at Boston College. Indeed, one knowledgeable in the field of financial aid might have predicted results more along the lines of Hypotheses A and B in Tables II and III.

The implications of each of these possibilities can be summarized as follows:

Actual Model: Table I

For a constant gap yield will *increase* with increasing need. This could be true for sociological reasons--e.g. poorer families will make greater sacrifices. It could also be true for psychological reasons--i.e. the simple attraction of more offered money will increase yield even as gap increases. Finally, there is the possibility that the need analysis (perhaps because of excess taxation of assets) is perceived as inequitable by middle-income families making decisions about college.

Hypothesis A: Table II

For a constant gap yield will *decrease* with increasing need, since poorer families may have a more difficult time making up the difference and may perhaps place a lower premium on the value of an education. (The data of course refutes this hypothesis.)

Table I - Actual Model

(Av) Gap ($)			(Av)Need ($)		
	(500) 0-1000	(1500) 1001-2000	(2500) 2001-3000	(3500) 3001-4000	(4500) 4001-5000
(250) 1-500	40%	50%	60%	70%	80%
(750) 501-1000		40%	50%	60%	70%
(1250) 1001-1500		30%	40%	50%	60%
(1750) 1501-2000			30%	40%	50%
(2250) 2001-2500			20%	30%	40%
(2750) 2501-3000				20%	30%
(3250) 3001-3500				10%	20%
(3750) 3501-4000					10%
(4250) 4001-4500					0%

Table II - Hypothesis A

(Av) Gap ($)			(Av) Need ($)		
	500	1500	2500	3500	4500
250	40%	38%	36%	34%	32%
750		36%	34%	32%	30%
1250		34%	32%	30%	28%
1750			30%	28%	26%
2250			28%	26%	24%
2750				24%	22%
3250				22%	20%
3750					18%
4250					16%
4750					

Table III - Hypothesis B

(Av Gap ($)			(Av) Need ($)		
	500	1500	2500	3500	4500
250	40%	40%	40%	40%	40%
750		38%	38%	38%	38%
1250		36%	36%	36%	36%
1750			34%	34%	34%
2250			32%	32%	32%
2750				30%	30%
3250				28%	28%
3750					26%
4250					24%
4750					

290

Hypothesis B: Table III

For a constant gap, yield will be constant with increasing need, since a true need analysis takes all factors into account in determining "ability to pay." Large numbers of people over a period of time should provide an operational definition of ability to pay. For example, a zero gap (full funding) means that choice will not be significantly influenced by financial considerations. Then the yield on the zero gap group of recipients should match that of the students not requesting aid. (Again Boston College's data does not substantiate this attractive hypothesis.)

Figure 2 displays the data of Table I in graphical form. The solid lines are lines of constant yield, while the dashed lines present policy options. For example, the solid line $Y = .4$ represents a constant yield of 40 percent across all needs and gaps. The dashed line along $Y = .4$ indicates that, when aid is one-half need, the yield will be a constant 40 percent. It can be demonstrated that these data are described exactly by the empirical equation:

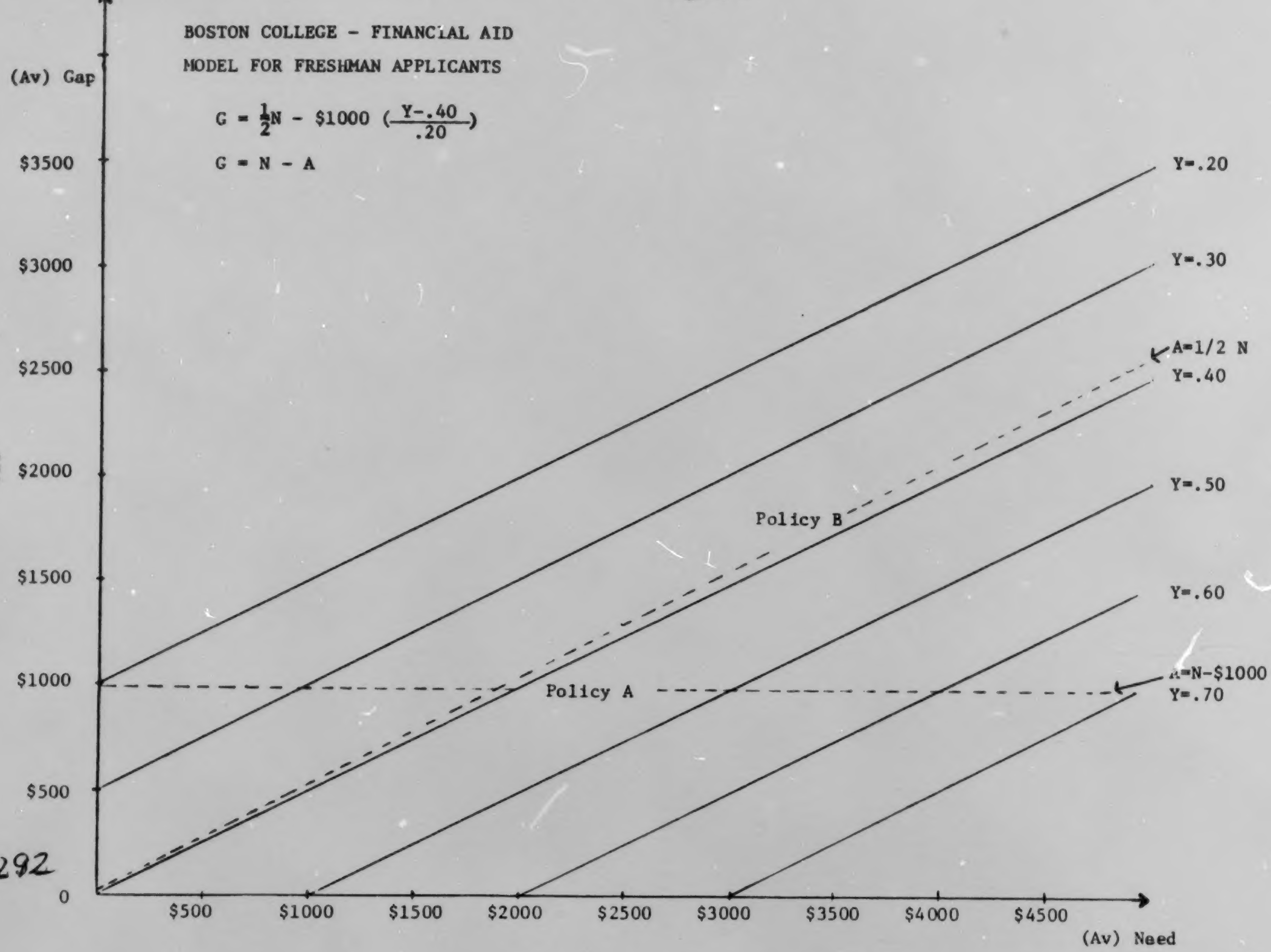
$$Y = \frac{-.4}{\$4000} (2G - N) + .4 \qquad (1)$$

where Y is yield, G is gap, and N is need. Equation (1) indicates directly that Hypothesis II is invalid for the Boston College population, since Y will change linearly with N for a fixed G. However, a transformation of form

$$2G - N = G' \qquad (2)$$

where G' is a constant, will allow $G = N/2 = A/2$ ($A = N - G$ is the aid awarded), when $G' = 0$ and $Y = 40$ percent. For all $G' \neq 0$, Y will be a constant represented by other solid lines in Figure 1. It should also be noted that the policy of underfunding by a fixed gap (Equity Packaging) will result in

Figure 2


BOSTON COLLEGE - FINANCIAL AID
MODEL FOR FRESHMAN APPLICANTS
$G = \frac{1}{2}N - \$1000 \left(\frac{Y-.40}{.20}\right)$
$G = N - A$
(Av) Gap
$3500
$3000
$2500
$2000
$1500
$1000
$500
0
$500
$1000
$1500
$2000
$2500
$3000
$3500
$4000
$4500
(Av) Need
Y=.20
Y=.30
A=1/2 N
Y=.40
Y=.50
Y=.60
A=N-$1000
Y=.70
Policy B
Policy A

a linear increase in yield with need. To some extent Weathersby's contention that the offer of aid is more important than the amount of aid is borne out by the data. For example, a need of $3000 with a $1000 package will result in a yield 10 percent greater than a need of $2000 which goes totally unmet.

If the CSS need analysis methodology is used to relate family contribution, FC, to income, I (it turns out that $FC \propto I^{3/2}$), the Boston College model can be shown to validate the College Board's conclusion that lower income (as defined by CSS) parents are willing to contribute proportionately more of their incomes to their children's educations than higher income parents. However, the Boston College data indicates that families in all income categories actually will pay more than CSS recommends. The apparent conflict may result from the marked difference between merely asking parents what they will pay and operationally determining what they do contribute when confronted with an offer of admission coupled with financial aid.

V. Student Resources for Unmet Need

Each year Boston College undergraduates who request financial aid are required both to undergo standardized need analyses and to fill out detailed applications. Projected resources and expenses must be itemized, and resources are required to equal or exceed expenses. A random sample of approximately 200 applications was chosen in order to study the methods students use to bridge the substantial need gaps created by underfunding.

As a group commuters listed considerably smaller parents' contributions than residents ($900 vs $1700), but tended to make up this difference by working part time during the academic year. More significantly, 80 percent of the combined group were determined to have unmet needs averaging roughly

$1500 after all institutional grants, BEOG, state scholarships, National Direct Loans, and College Work Study funds had been distributed.

Over 50 percent of all students in the sample reported parents' contributions exceeding CSS recommendations by significant amounts. Likewise more than half of these aid recipients are involved heavily in part-time employment to defray their educational expenses. Surprisingly, bank loans represent a relatively secondary source of funds for unmet need.

Boston College has already responded to these findings by inaugurating a comprehensive Student Employment Program and is now exploring the possibility of an internally sponsored loan fund for middle-income students. Additional discretionary funds are now available for disbursement to returning students who have demonstrated both need and commitment through jobs and loans. Our pricing policy will probably remain relatively conservative for the foreseeable future until further studies are undertaken on optimal strategies for the distribution of scarce resources.

VI. Conclusion

There is a serious risk that the human dimension will be ignored in our effort to balance the goals of the institution (and the requirements of federal and state laws) with the needs of individual students. Although this research demonstrates that many parents are willing to make remarkable sacrifices to send their sons and daughters to Boston College, it does not follow that they should be required in the future to subsidize others perhaps less committed.

It should also be noted that no need analysis system can (or should) fully account for values in assessing what is reasonable for a family to contribute to educational expenses. But to ignore totally the concepts of value and willingness to sacrifice could also be a disservice to students and their families, as long as sufficient monies are unavailable to meet fully the objectively analyzed needs of all.

ASSESSING THE EFFECTIVENESS AND PROPRIETY OF MERIT-BASED SCHOLARSHIPS

Peter T. Farago
Boston University

INTRODUCTION

Merit based scholarships have a long history in American Higher Education. They were commonly used by colleges and universities before the large influx of students in the 60's and 70's. The use of such awards declined while the pool of outstanding students increased sharply. More recently, as the pool of such students has leveled off and competition for them among institutions has heated up, many of these institutions have again turned to the use of merit awards to attract high quality students. A recent survey of colleges by the College Board reports that 64% of the 1977 responding institutions awarded merit scholarships, compared to 54% of the respondents to a 1975 survey.[1] The same report states that "only 17.7% of the responding institutions had done any systematic studies of those who accepted or refused no-need awards." In another recent survey of colleges and universities, Octameron Associates found that 80% of the 500 responding institutions had some type of merit scholarships which were awarded without regard to students' financial needs.[2]

REPORT OF STUDY AT BOSTON UNIVERSITY

Four years ago, in 1974, Boston University joined the growing number of colleges and Universities which offer a limited number of scholarships based on students' academic merit without regard to their financial need. The stated purpose of these scholarships was to attract to Boston University academically outstanding students who otherwise would not have chosen to attend the University, by demonstrating in a tangible way the value that the University places on students' high academic promise. At that time a decision was made to try to conduct detailed analyses aimed at determining how well these scholarship programs fulfill their purpose. This is a report of the method of analysis applied and of the results of that analysis.

Two different merit-based scholarships were set up. The Honor Award was to be a one-time grant to new students. Its size varied in the past four years from $200 to $2,000, with most of the recent awards being $1,000. The number of these awards extended has varied between 600 and 700 per year.

The other type of scholarship established was a Trustee Scholarship. This was a full tuition and fee scholarship awarded to outstanding entering freshmen. The number of these scholarships has risen from about 50 in the first year to about 100 in recent years.

Both of these scholarships are awarded without regard to the student's financial need. The method of analysis used to evaluate the two programs was essentially the same. Two approaches were used. The first approach was to examine the differences between the characteristics of scholarship recipients who attended the University and those who did not attend. The two groups were compared using several measures of academic quality and of financial need. Specifically three measures of academic quality were examined: composite SAT scores, Admission Ratings, and high school class rank percentile. Four financial characteristics were also examined. They were: financial need excluding and including the scholarship, the amount of the scholarship, the % of need filled by "gift" aid. The study compared the attending vs. non-attending recipient groups using these variables one at a time.

The second approach used in the analysis was aimed at trying to determine the extent to which the awards were effective in attracting students to the University. The registration rate among scholarship recipients was statistically compared with the registration rate among a "control" group of students with similarly high academic standards who did not receive scholarships. The control group was chosen such that students matched the scholarship recipients in their academic characteristics and in their school of enrollment at the

University. Both groups were divided into subgroups to control for differences in various characteristics such as sex, self perceived financial need and academic quality. Differences in registration rates between matching subgroups were tested for statistical significance.

Several interesting patterns emerged as the result of our analyses. By comparing the characteristics of attending and non-attending award/scholarship recipients, we consistently found a pattern that indicated that the probability of attending was directly related to students' financial need and inversely related to students' academic quality. Students of higher academic quality (over 1300 cumulative SAT score) were less likely to attend than students of lower academic quality (~1100-1200 cumulative SAT scores). The same pattern was confirmed using other measures of academic quality as well.

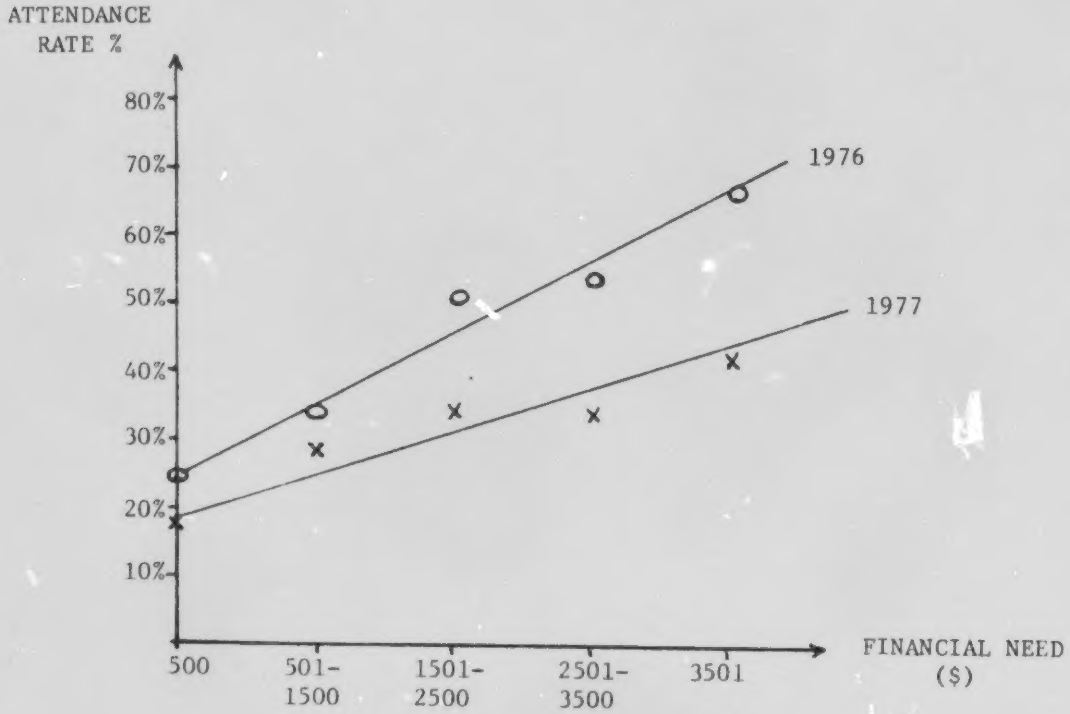


Figure 1

ATTENDANCE RATE VS. FINANCIAL NEED
1976 AND 1977 HONOR AWARD RECIPIENTS

We also found that students with significant financial need were more likely to attend than students with no financial need. In fact, as in the case of the academic measures, we found a fairly linear relationship between the probability of attendance and financial need. Figure 1 shows this relationship using data based on our 1976 and 1977 Honor Awards. The analysis of the two years[1] Honor Awards revealed a similar pattern with one interesting difference. In 1977, the award recipients were of higher academic quality than the 1976 recipients. The 1977 attendance vs. need line has a lower intercept and a smaller slope than the line for the '76 recipients. This reflects the reduced sensitivity of the '77 group to the financial awards, consistent with the relationship between attendance and academic quality which was discussed above.

The next part of the study was aimed at determining the extent to which the merit scholarships may have affected students' attendance decisions. Rather than asking students about their decisions, which we felt was a less than reliable indication of what actually happened, we opted for a statistical test using data already available to us. Using the academic profile of the award recipient group as our guide, we selected a second group of accepted applicants whose overall academic profile matched that of the award group. In fact, we did this separately within each school of the University that offered honor awards. This was necessary because the academic profile of the awardees differed significantly from one school to the other. Once the control groups were chosen, they were weighted to match the school to school distribution of the award group and combined into an overall control group. All of the analyses which are described below were performed for the two groups within each school as well as for the aggregate award and control groups.

Attendance rates were statistically compared among the control and award groups and were tested for the significance of difference between them. This comparison was then repeated for various subgroups: men, women, those with and without perceived financial need and for the subgroup with the highest academic rating. The combined data for the two years is summarized in Figure 2.

COMPARATIVE REGISTRATION RATES

	STUDENTS WITH PERCEIVED FINANCIAL NEED	STUDENTS WITHOUT PERCEIVED FINANCIAL NEED	DIFFERENCE
HONOR AWARD RECIPIENTS	31.7% (n=873)	18.9% (n=428)	Significant at 0.01 level
CONTROL GROUP	24.0% (n=928)	21.6% (n=593)	Not Significant
DIFFERENCE	Significant At 0.01 Level	Not Significant	

Figure 2

The data show that the Honor Awards were significant in increasing attendance among students with financial need, but were ineffective in increasing attendance among students without financial need. No other significant differences in attendance rate were observed between the two groups when they were broken down by sex.

The Trustee Scholarship program had somewhat different results. These full tuition scholarships were found to significantly increase attendance among every subgroup of students except students who did not have financial need. It should be noted that while attendance among this no-need group was increased, the difference was not statistically significant at the 0.05 level. In other words, even the offer of a full tuition scholarship failed to make a significant difference in the attendance rate of students who did not need financial aid.

QUESTIONS OF PROPRIETY

Beside the question of the effectiveness of no-need awards, there is a second question concerning their propriety or ethical implications. An informal survey of financial aid officers reveals general opposition to this type of award. These professionals, who day after day have to face students and tell them that they cannot receive more financial aid for lack of sufficient funds, believe that available funds should be distributed to qualified students based on their need. They regard no-need awards as a policy of "buying students". The Pennsylvania Chapter of the Association of College Admission Counselors adopted a position statement opposing no-need scholarships based on these and related arguments.[3] The National ACAC has a similar proposed policy statement under consideration. Students with financial need also often resent the use of the limited financial aid resources as awards to students who do not even apply for financial aid. Even among award recipients, the policy of a large grant component awarded to them as freshmen which is then removed or drastically reduced in subsequent years is regarded by many students as a policy which cojoles them to come to an institution which then leaves them "high and dry" once they commit themselves to attending the school. These are only some of the implications of no-need awards that administrators must consider at the time they consider using no-need merit awards in an attempt to increase their applicant pool or their conversion rate among high quality applicants.

SUMMARY

In summary, based on our findings, we conclude that scholarships are effective in increasing attendance rates among needy students - the greater the need, the larger the effect. At the same time, such awards are not effective in increasing attendance among students who have no financial need. Further, even among needy students, the effect of such scholarships may be related to other factors such as the school offering the award and the student's academic quality. Given these findings, and in light of the controversy surrounding the propriety of no-need merit scholarships, the widespread use of such awards seems to need further evaluation. Admission and financial aid officers at other institutions may want to conduct similar studies and may then reevaluate their merit-based scholarship programs in light of their findings.

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STUDENT OUTCOME DATA:
THE EXPERIENCE OF ONE LARGE PUBLIC UNIVERSITY

Paul L. Kenepp
James M. Slick

The Pennsylvania State University

This new dimension of accountability: That is--student outcome assessment--has not been a new topic regarding the study of overall college impact. Researchers have been studying for sometime the effect college has on its students. The research of Feldman and Newcomb in 1969 studied many aspects of college effect including cognitive learning, emotional and moral development, and practical competences. Their research also included the students' evaluation of college. Clark, Chickering, and others (1962, 1969) have reported how college imparts to its graduates greater flexibility, tolerance, and individual choice in matters of personal behavior. Over the years many have contributed significantly to the research in the area of college impact.

Why Study Outcomes?

It seems one can relate this new dimension of accountability on outcomes to the recent thrusts to learn more about the relationship of education to the world of work. As noted by Lewis Solmon (1978), over the years most everyone has agreed that education and work are closely related. In fact, support for education was based largely on manpower needs. Now, however, postsecondary education no longer ensures a good job or, in some cases, any job at all. It's true that a college education should mean much more than getting a good job, but with increasing tuition and education costs, lack of tax support dollars, and a dwindling job market, more and more people are asking: What value is college if it does not improve job opportunities for its graduates? It seems that institutions should know if graduates are acquiring productive, meaningful jobs that relate to their education. If research shows the contrary, should we not review internally the goals and objectives of those academic programs affected? As a major supplier of trained personnel for the nation's job market, institutions need to learn more about the relationship of their graduates and job success.

This idea received impetus in a 1974 commencement address by Gerald Ford at Ohio State University. He endorsed new policies to strengthen relations between educators and employers to create "a new climate of credibility--an atmosphere in which universities turn out scholars and employers turn them on."

Jossey-Bass has recently published a new series of quarterly source books to explore the link between the campus and employment. New Directions for Education and Work will attempt to take up, the first year, manpower forecasting, the effects of education that are not related to work, and the implementation of education-work policies.

Value To The State of Pennsylvania

Another reason for Penn State's move toward student outcomes assessment stems from a 1972 Penn State Study (Toombs, 1973) for the Pennsylvania Department of Education which recommended that a systematic statewide data collection effort be implemented to help describe the status of recent college graduates. The report noted that the data on the first employment and other activities of young people prepared at the postsecondary level of Pennsylvania, if available, would provide valuable information regarding the relationship of manpower and statewide policy. In addition, it would provide significant insight regarding the relationship of the curriculum and employment. Since 1974, the Pennsylvania Department of Education has compiled an annual statewide report on the first graduate activities of Pennsylvania college graduates. The 1977 report (Donny) included data from 128 postsecondary institutions covering more than 50% of the nearly 90,000 graduates in the State. This report illustrates important trends in the State's job market for trained personnel and the relationship of employment with the graduate's field of study.

PENN STATE'S APPROACH

In defining Penn State's student outcome data collection procedures, we had to consider the information needs in this area both internal and external to the institution. Internally, it was important to support academic program planning and evaluation, career counseling, budget planning and review, and special requests for outcomes information from our colleges and departments. Externally, we needed to respond to state reporting needs and other manpower reporting agencies.

The Instrument and Survey Procedures

We survey all graduates. For Penn State this comprises of approximately 12,000 graduates per year from nearly 500 academic degree programs which range over five major degree levels. We feel that cost and effort to run a survey for a meaningful sample is not much different than for the total population of graduates. In fact, the diversity of our programs and degree type would complicate the development of a valid sampling technique for all of our special groups of graduates. In addition, a more meaningful report of statewide trends can be developed by the Pennsylvania Department of Education if we report to them the largest possible number of responses for graduates in all fields of study.

Our survey instrument is a single page form with questions on only one side (see Appendix A). It was designed by the staff of Penn State's Career Development and Placement Center. The cover letter which accompanies this form goes out under the signature of the dean of the college from which the student graduated. The simplistic yet comprehensive nature of the survey questions we feel has resulted in a high level of quality and quantity of returned data. For this survey we do not ask questions pertaining to preceived college value but rather limit the questions to first employment and additional education plans.

Our data system begins with our commencement list (Diploma File). From it we develop a base record of those who graduated and include such data items as degree earned, date of degree, and campus where the degree was awarded. We obtain addresses from the Alumni file and prepare the mailings to go out approximately three months after graduation. Six weeks after the first mailing, a follow-up letter and survey form are mailed to graduates who did not respond to the first mailing. This follow-up usually doubles the current yield.

Dual Roles of the Career Development and Placement Center and Institution Research Office

All forms are mailed from, and returned to, the Career Development and Placement Center (CDPC). This office monitors return rates and reviews each returned survey form so as to make judgments for coding such items as job classification and employer type. In addition, CDPC prepares machine readable data for computer file updates.

The computer data base and reporting system, developed by the staff from the Institutional Research Office (IR), produces a monitoring report with each file update. This report shows current response rates at each degree level. It indicates when data are sufficiently complete for valid reporting. We strive for a 60% response rate. We also produce the usual machine editing diagnostics for data validation. The operational procedures for data base maintenance and the design of several computer reports were coordinated between the CDPC and the IR Office.

This shared responsibility between the Career Development and Placement Center and Institutional Research for the overall system operation has proven to be a successful undertaking. Both offices have a high interest in the data and its value to the University community. Career Development and Placement Center reviews that data and produces reports in the general areas of career opportunities and employment characteristics of the Penn State graduate (Slick, 1978). Through this reporting, the Penn State data are also related to national figures. In addition, the CDPC works with academic departments to help them interpret survey results. The Institutional Research Office reviews the data from the aspect of overall impact for the institution and reports findings in such areas as migration patterns and additional education trends for the Penn State graduate. Other institutional research reports include comparisons of Penn State graduates with graduates from other Pennsylvania institution sectors (Kenepp and Mayes, 1978). With well defined responsibilities, each office works in concert so that neither is burdened with all of the operational chores.

Institutional Questions About Outcomes

In assessing student outcomes, we set out to answer several questions about the initial postgraduation status of the Penn State graduate. For example: How many find jobs? How many seek additional education? How does the status of graduates differ from college to college? Each campus location? Are there differences among the degree levels? Is there a University norm?

In addition, we are interested in the type of jobs Penn State graduates acquire soon after graduation. What is the nature of the work and the salary level? For a specific academic program do the jobs that the doctoral graduates acquire differ from the jobs obtained by the master's graduates? For a given academic program what is the dollar difference (in salary) between the doctor's and master's degree for the same type job?

How many Penn State graduates continue their education? Where do they go? Within Pennsylvania? To what other states? What are the specific institutions?

Who employs Penn State graduates? In what degree levels are particular employers most interested? Graduates of what programs are most likely to find a job with a particular employer? What employer pays the highest salary?

What are the migration patterns of the Penn State graduates? In what states do they find employment? Where do they go for additional education?

How does the status of the Penn State graduate compare with the status of graduates from other institutions in Pennsylvania? For comparable academic programs, do the employment rates of our graduates differ from the employment rates of graduates in similar disciplines at other institutions? Do our graduates find employment within Pennsylvania in relatively the same proportion as graduates from other institutions?

The series of computer reports we are currently designing attempt to provide answers to these questions. They represent those things that we want to understand better about degree completors at this point in time after their graduation.

Appendices B-D are sample pages of computer reports using a subset of the data from Summer 1977 graduates. Appendix B summarizes, by college, where baccalaureate graduates continue their education. Specific institutions are identified in Appendix C. Appendix D shows salary levels of graduates who obtained jobs as environmental scientists. Salary relationships between degree levels and academic programs can be studied from this report. Based on the various computer printouts, broader interpretive reports are produced that analyze differences and similarities among the various University colleges as well as make comparisons with results from nationwide studies. Other computer printouts available but not included in this paper include: (1) employers of Penn State graduates and salaries paid, (2) factors influencing job attainment, (3) occupational distribution of graduates, (4) status summary, and (5) migration patterns.

LONGITUDINAL STUDIES

Assessment of student outcomes cannot be based on data collected at just one point in time after graduation. The long-term effect of college requires outcomes to be assessed through a planned program involving more than one survey. The Institutional Research Office is currently designing instruments and procedures to implement a three-year follow-up in the spring of 1977. In addition, plans are underway to develop a five-year follow-up and possibly a ten-year follow-up. The data gathered at these intervals in time will permit us to study patterns of employment, salary changes, additional education, and the graduates' perception of the quality and value of a Penn State education. We will attempt to assess the relationship of education to employment and, probably of more importance, study its long-term influence on the personal lives of degree completors. We will modify our data base to attach these new segments of information so that the data are more readily available for longitudinal studies and analyses.

The basic information unit on a graduated student now consists of two parts. The first part contains graduation information which includes name, field of study, degree, and when it was awarded. The second part (segment A) contains data from our current survey initiated soon after graduation. With additional segments (surveys) we will record job titles, salaries, status of additional education, and the graduates perception of the institution. These data will permit us to track the careers of graduates, hopefully, through ten years after graduation.

It should be pointed out, however, that "collecting the data isn't the half of it." An elaborate data collection system, a comprehensive instrument, and a beautifully organized data base does not guarantee success in student outcome assessment. Its true value comes when we are able to say that it has helped, for example, a student choose a major field of study; an academic administrator who has decided to review the goals of a particular program because the career patterns of its graduates appear to be changing; or planners, who are reviewing institutional mission and goals, to formulate clearer guidelines for educational policy and program purposes.

SPECIFIC INTERNAL USES OF OUTCOMES DATA

Student outcomes reporting at Penn State has had an impact on various functions within the institution. For example, some of the questions most often asked of our career counselors relate to the postgraduation activities of Penn State graduates. Simply stated the questions are: Where have they, the graduates, gone? What are they doing?

These questions are asked by:

1. High school students and their parents as they consider one of the programs here at The Pennsylvania State University.
2. University students as they consider the choice of academic electives and the relationship of those electives to a particular career field.
3. University students who are contemplating changing majors (approximately fifty percent of all students are in this category).
4. University students who are pondering entry into the world of work after completing the bachelor degree program versus going on to graduate school.
5. Members of the various academic departments.

The one page questionnaire utilized in this survey sets out to answer these questions by developing a profile of the Penn State graduate. After these data are processed by the Institutional Research Office they are disseminated to the University students, counselors, advisors, and administrators in an annual Career Development and Placement Center publication titled, "Postgraduation Activities of Penn State Graduates" (Slick, 1978).

In this report the data are first summarized at the university level as a function of degree. The data are then broken down to the college level and finally to departmental level--this being the level of greatest interest when addressing career issues. This report begins by focusing not on the Penn State graduate but rather on the national supply of, and demand for, college graduates. This initial section develops a background so that the Penn State data might be viewed in its proper perspective. In preparing this phase of the report, sources such as The Bureau of Labor Statistics, Pennsylvania Department of Education, The College Placement Council, The Endicott Report, Engineers Joint Council Report, and reports from the Scientific Manpower Commission are reviewed. When discussing employment opportunities for college graduates, the data are organized into categories that relate, as closely as possible, to the college structure at this university.

As indicated earlier the "Postgraduation Activities of Penn State Graduates" attempts to answer questions asked by a broad cross-section of the university community. The following would be representative of the ways in which this report would be used.

Career Counseling

Many students are not aware of the specific types of employment they might be prepared for, and as they become aware of where others have gone, they could develop ideas as to where they themselves might go.

As students identify a particular occupation they might then consider the selection of academic electives and work experiences to better prepare themselves for an entry level position in the field of their choice. An example might be a student majoring in East Asian Studies observing that another graduate from this major is now employed in the import/export field. The student further examines this occupational area, and if it's found to be to his liking, the student could elect to concentrate a sizeable portion of his academic electives in the area of business and economics.

This report is also helpful in the identification of career clusters. Thus, the student could become aware of alternatives to his primary career goal. An example of this use could be a premed student who, by examining the data, becomes aware of hospital administration as a secondary career goal.

Faculty and Administration

The "Postgraduation Activities of Penn Graduates" is also studied by faculty and administrators at both the college and departmental levels. As a result of a study of these data, they might decide to reexamine the goals of a program or the content of a course because of the changing career patterns of graduates. There is a growing interest among the various academic and administrative units of the University in using outcome data for planning and evaluation.

Commonwealth Campuses

Two-thirds of all Penn State students begin their college programs at a Penn State Commonwealth Campus and career counselors at these campuses use this report in much the same manner that it is used at University Park. In addition, the campus career counselors also share the data with the high school guidance counselors and interested high school faculty members in their community. Thus, through these channels high school students and their parents have at their disposal a better picture of the postgraduation activities of Penn State graduates. As a result, high school graduates can, hopefully, form a clearer understanding of how a Penn State education may help them fulfill their personal and career goals.

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The Pennsylvania State University
Graduate Placement Survey

Name ____ ____________________
Last First Middle Initial Social Security #

Current Mail Address ____
Street City State Zip

May We Have Your Phone No.? ____ - __________

Where there is a choice of responses, please circle the most appropriate one, where you are asked to complete information, please print carefully. THANK YOU VERY MUCH FOR YOUR COOPERATION.

Part I.

1. CURRENT STATUS

(01) I have accepted employment in the field I prepared for.
(02) I have accepted employment in another field.
(03) I am unemployed but actively seeking employment.
(04) I have offers of employment But have not made a decision.
(05) Employment is not an important consideration to me at this time; personal enrichment was my primary reason for coming to Penn State.
(06) I have been accepted by a college, university, or professional school for further degree work.
(07) I have applied to a college, university or professional school, but have not yet been accepted.

Part II. If you have accepted employment, please complete items 2, 3, and 4; otherwise, go to Part III.

2. Is your employment: (1) Full-time? or (2) Part-time?

____
Name of Employer

____
Job Title

____
Employed at: Street City State

3. Twelve (12) month salary to nearest hundred dollars ______________ ______

4. How did you get your job?

(1) I was employed before graduation and am continuing in that job.
(2) Penn State Placement Office
(3) Academic dept. or college
(4) Personal referral
(5) Self-initiated (including Military Enlistment)
(6) Public employment agency
(7) Private employment agency
(8) Newspaper Advertisement
(9) Other ____________________

Part III. If you have been accepted by a college, university, or professional school for further work, please complete items 5 and 6.

5. ____
Name of college or university Curriculum

6. Degree sought:

(1) Bachelor
(2) Master
(3) Doctoral
(4) Professional degree (e.g., M.D., LL.D.)
(5) Associate Degree
(6) Other ____________________

DB4/7

Appendix A

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The Pennsylvania State University
Institutional Research Division

Additional Education of Penn State Baccalaureate Degree Program Graduates

10/02/78
PG1242R

College Summary

PSU Graduation Term (S):
Summer, 1977

COLLEGE	Add'l Ed. NUM	Add'l Ed. %	Within PA NUM	Within PA %	Outside PA NUM	Outside PA %	At PSU NUM	At PSU %	Non-PSU Within PA NUM	Non-PSU Within PA %	Survey Response NUM	Survey Response %
Agriculture	8	30	7	87	1	12	4	50	3	37	26	54
Arts & Arch	0	0	0	0	0	0	0	0	0	0	18	51
Capitol	2	4	0	0	2	100	0	0	0	0	43	49
Bus Admin	3	3	2	66	1	33	2	66	0	0	85	62
Education	2	2	1	50	1	50	1	50	0	0	73	66
Engineering	4	7	4	100	0	0	3	75	1	25	55	66
H P E & Rec	0	0	0	0	0	0	0	0	0	0	27	55
Human Devel	7	6	7	100	0	0	4	57	3	42	103	62
Liberal Arts	13	13	9	69	4	30	6	46	3	23	98	52
Earth Min Sci	5	20	1	20	4	80	1	20	0	0	25	64
Science	19	22	16	84	3	15	2	10	14	73	84	62
All University	63	9	47	74	16	25	23	36	24	38	637	59

Survey response percentages are based on total number of graduates. Additional education percentages are based on total number of respondents. Other percentages are based on number continuing their education.

APPENDIX B

The Pennsylvania State University
Institutional Research Division

Graduate Institution Where Penn State Baccalaureate Degree Program Graduates Continue Their Education

08/29/78
PG1242R

SCIENCE

PSU Graduation Term(s):
Summer, 1977

Institutions	Number Attending
*Thomas Jefferson University	7
*Jefferson Medical College of Philadelphia	5
*Pennsylvania State University	2
*University of Pittsburgh	1
*Drexel University	1
Florida Institute of Technology	1
University of California - Santa Barbara	1
+Other	1
Total	19

Total Respondents = 84 which represents 62% of the graduates during this period.

22 percent of the responding graduates are reportedly seeking additional education.

* Denotes Pennslyvania institution.

+ 1 institution could not be identified (grouped as "Other").

APPENDIX C

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Salary Profiles
of
The Penn State Graduate

Environmental Scientists
Term: Summer, 1977

10/02/78

	Employed in Field				Employed Out of Field				Total			
		Salary				Salary				Salary		
	Num	Lo	Avg(N)	Hi	Num	Lo	Avg(N)	Hi	Num	Lo	Avg(N)	Hi
BACCALAUREATE												
BIOL	1	11000	11000(1)	11000					1	11000	11000(1)	11000
METEO	1	10500	10500(1)	10500					1	10500	10500(1)	10500
G SC	1	10100	10100(1)	10100					1	10100	10100(1)	10100
DEGREE TOTAL	3	10100	10533(3)	11000					3	10100	10533(3)	11000
MASTER												
E P C	1	19500	19500(1)	19500					1	19500	19500(1)	19500
METEO	1	15000	15000(1)	15000					1	15000	15000(1)	15000
BIOL	1	13000	13000(1)	13000					1	13000	13000(1)	13000
GEOL	1	12500	12500(1)	12500					1	12500	12500(1)	12500
DEGREE TOTAL	4	12500	15000(4)	19500					4	12500	15000(4)	19500
DOCTORAL												
GEOL	1	21900	21900(1)	21900					1	21900	21900(1)	21900
METAL	1	21400	21400(1)	21400					1	21400	21400(1)	21400
MIN P	1	12500	12500(1)	12500					1	12500	12500(1)	12500
DEGREE TOTAL	3	12500	18600(3)	21900					3	12500	18600(3)	21900
JOB TOTAL	10	10100	14740(10)	21900					10	10100	14740(10)	21900

MEASURING THE OUTCOMES OF POSTSECONDARY EDUCATION: THE RHODE ISLAND EXPERIENCE

By Peter Woodberry
Rhode Island Department of Education

If statements of Purpose, Role and Mission are to provide a map as to where a state system or the institutions within that system want to go, outcome measures provide a basis for assessing whether or not we have gotten there. Decision-makers in postsecondary education today are increasingly expressing their need for better information about the outcomes (the results and impacts) of their institutions and programs. While a variety of pressures are responsible for this increased need, in particular, the shifting demand for the type and quality of educational goods and services is forcing institutions to examine how well they are meeting these changing demands. There is a clear need for information about both program and institutional outcomes that enable institutions to assess how well they are performing, examine what impacts they are having, and identify directions they should pursue in the future. Thus, the topic of outcome measures seems to be closely tied to the conference theme: New Responses to New Demands.

While information about faculty, degrees conferred and number of students enrolled in particular programs has been developed for our state-level information base, the Board of Regents for Education in Rhode Island has recognized that little is known at the system level about student attitudes and plans. Little is known about changes in students' plans and attitudes over time or about their success in adjusting to new ways of life following graduation. In short, the type of information needed to evaluate outcomes and impacts of postsecondary education in the state of Rhode Island was not available in a form that permitted assessment at the state level.

The Rhode Island Outcome Measures Project focuses on obtaining information from students to assist decision-makers in assessing the result or consequence of a student's enrollment in an educational program. This past spring, three survey instruments were developed and administered to students who graduated this year, last year and five years ago from the University of Rhode Island, Rhode Island College and Rhode Island Junior College. In addition, in order to include a longitudinal aspect to this project, a follow-up survey of the recent graduates will be conducted at a future date.

The thinking behind each of the surveys was to develop "outcome measures" useful to the greatest extent possible for both institutional as well as state-level purposes. An interinstitutional committee was established to ensure the utility of the data for both sets of users. An assumption was made that information about changes in student attitudes and plans is useful to institutions as feedback on the impact that a student's program of studies may have fostered, the degree to which a student perceived or took advantage of the support services of the institution, and the types of work, further study or other activities which their graduates became involved with subsequent to program completion.

The interinstitutional committee members met on several occasions and identified a set of questions which had the greatest potential to retrieve useful information on student outcomes. Our objective was to keep the survey instrument as brief as possible and to gather information which would facilitate the assessment of actual outcomes as compared to intended outcomes. Intended outcomes are listed in several documents including: a state-level statement on the Purposes of Postsecondary Education in Rhode Island and the institutional role and mission statements of each of the three public postsecondary education institutions in Rhode Island.

Working with the assumption that students' attitudes about what they have done and what they plan to do may be subject to change over time, a questionnaire for recent graduates as well as for students who graduated five years ago seemed desirable. Also, a census approach was taken as opposed to a sampling approach and a modified survey instrument was developed for the two-year institutions which differed only slightly from the senior institution questionnaire.

I feel it important to mention before going further, that Rhode Island has been serving as the pilot test state to explore outcome measures as part of a larger project sponsored by the National Center for Education Statistics (NCES) and the National Center for Higher Education Management Systems (NCHEMS) entitled the State-Level Information Base (SLIB) project. The overall purpose of this special exploratory effort in Rhode Island is to provide the SLIB project with a set of prototype information items and procedures that will satisfy the SLIB project objectives with respect to outcome information needed at the state level. In addition to assisting us in the preparation and printing of the surveys, NCHEMS is keypunching the responses from the returned questionnaires. During the next several months we will be reviewing the data collected in this developmental area in order to identify a discrete set of useful outcome-related information and to make recommendations as to outcome information that should be included in a comprehensive state-level information base.

Each of the questionnaires used in the Rhode Island Project asked a range of questions: basic demographic data (i.e., age, race, sex); information pertaining to student characteristics while enrolled (i.e., financial aid, grade point average, legal residence); future plans (i.e., immediate and long-range work and education plans); questions related to student perception of institutional services (i.e., reading skills improvement, career planning and placement, library); helpfulness of institution in reaching goals; and satisfaction with courses and faculty.

Availability of responses to questions of this type at the state-level facilitate monitoring and assessing whether educational institutions are responsive to the ever-changing needs of the populace they have a mission to serve. By using materials containing identical data items for all three public institutions in Rhode Island, we can identify problem areas which are common across institutions or which are particularly unique. We will also learn how the experiences at an institution may affect a student's behavior in the job market, as a citizen, and in his/her continued education.

With an interest in providing better information for student choice, we plan to add outcome information to our booklet

"Education Beyond High School" which currently provides program and student financial aid information. Data such as satisfaction with degree program, type of job obtained and acceptance into further educational programs are of definite interest to current and potential students.

What is it that we know now because we have this data that we did not already know without it? For example, we now know how satisfied students are with their experience, not just at one public institution, but all the public institutions in Rhode Island - a university, a college and a junior college. We know (or will know when the data set is complete), how a student's opinion may have changed over time by comparing the responses of the class of 1978 with those of the class of 1973. Because the question of student satisfaction has been asked in such a way that we will know students' impressions of their general education courses, and their major program, on a scale ranging from very dissatisfied to very satisfied, we will have an outcome measure useful for assessing the state level goal statement that "the postsecondary education system will offer a wide range of programs of high quality in a variety of institutional settings."

Furthermore, because the responses to such questions can be cross-tabulated by student major, a range of outcome measure information can be refined to be useful not only at the institutional level but also to a specific program within an institution.

This information source provides us with a basis to assess whether we have a public postsecondary education system which fosters another state-level goal, "that all persons in Rhode Island will have an equal opportunity to complete a postsecondary education program." This kind of information becomes an extremely useful outcome measure when compared to the race and sex data collected on the ACE-Freshman Profile in which all three institutions also participate.

It is also a state-level goal in Rhode Island "that individuals will acquire skills and knowledge to help them choose and realize their career and economic goals." Our outcome measures instrument will provide us with data on students' specific career goals, educational aspirations and attitudes as to the helpfulness of their college to discover their vocational interest, prepare for a new career and/or to improve their technical skills required in a current position. The longitudinal design of the project will allow for examining student attainment of educational and occupational goals in future years. In addition, we will learn of their interest to join the Rhode Island work force or that of another area. Again, we will be able to compare the differences between institutions and maybe most importantly how student plans and attitudes change over time, from the time just before graduating, to one year out, to five years out. Stability of attitudes and perceptions could be assessed for persons of varying backgrounds and characteristics as well as from different schools.

An example of the kinds of outcome information that are available and useful for both state-level and institutional purposes is illustrated in the following table. My particular interest when constructing this table was to look at the degree to which students from different programs were successful in finding immediate employment in their field of specialization.

RESPONSES FROM INSTITUTION "A" 1978 GRADUATES

Major/Work Plans/Relation to Major

	Total Students By Major	# Who Plan To Work Immediately After Graduation	% Of Total Who Are Planning To Work Immediately After Graduation	# Who Have Currently Secured Work	% Currently Of Those Planning To Work	# Currently Whose Work Is Directly Or Somewhat Related To Their Major	% Directly or Somewhat Of Those Currently
Agriculture	93	65	70 %	14	22%	7	50 %
Biology	48	26	54 %	7	27%	4	57 %
Business	131	114	87%	37	32 %	34	92 %
Education	77	61	79 %	6	10%	2	33 %
Engineering	84	66	79%	49	74 %	45	92 %
Health	108	97	90 %	40	41%	40	100 %
Home Ec.	90	90	100 %	14	16 %	11	79 %
Psychology	41	24	59 %	11	46 %	5	45 %
Other	140	80	57 %	61	76 %	20	33 %
TOTAL	812	623	77 %	206	33%	178	86 %

In reviewing this table, I am struck by the large number of Engineering graduates who are planning to work following graduation (79%), who have already secured a position (74%) and who have a position which is directly or somewhat related to their major (92%). Education graduates have plans to work at a similar level as Engineering graduates (79%) yet only (10%) had secured a position at the time they completed the survey and of these only (33%) found a job related to their major. At the state level, we have an indication of the relative demand by employers for students completing various types of programs. When these data are mixed with other outcome measures related to residence plans, specific job/occupation, and similar responses from students who graduated in 1977 and 1973 and data from other institutions, a fairly complete picture of student success in securing work related to their major emerges. In addition, each institution could probe the data to learn of the more subtle differences from program to program.

The major problem that I foresee with regard to the use of outcome information is that it is often impossible to ascertain cause-and-effect relationships between educational resources, activities and student outcomes. Yet, this problem can be mitigated if the researcher, manager, or board member acknowledges this problem and uses the data as an indicator of performance and not as an explanation. For example, if 35% of the survey responders indicate general dissatisfaction with the overall quality of instruction, such an outcome measure does not, in and of itself, suggest a cause. We can learn a great deal more by refining our inquiry to answer questions about who is dissatisfied. Our data base will allow us to know whether they are: men or women, students in a particular major or working students and so on. Just as the financial analyst needs certain yardsticks to evaluate the financial condition and performance of a firm, educational decision-makers need yardsticks. Analysis and interpretation of various ratios or indices should give a better understanding of the condition and performance of programs and activities. Thus, outcome measure information can be useful to the planner, manager, researcher and policy board member.

I am particularly grateful for the contribution of the following persons: Joanne Ahola, Kathy Campbell, Arthur Goldberg, Dr. Clyde Ingle, Robert Magnani, Dr. Eleanor McMahon, Dr. Sidney Micek, and Dr. Thomas Pezzullo.

ATTACHMENT I

SURVEY OF GRADUATING STUDENTS

A Cooperative Project of:

Rhode Island Junior College
Rhode Island College
University of Rhode Island
Rhode Island Department of Education

① Name: (please print)

Last ______ First ______ Middle Initial ______

② Permanent Mailing Address:

Number Street ______

City ______ State ______ Zip code ______

③ Sex: (Check one)

1
- 1 ☐ Female
- 2 ☐ Male

④ Race/Ethnic Identification. (Check one)

2
- 1 ☐ American Indian or Alaskan Native
- 2 ☐ Asian or Pacific Islander
- 3 ☐ Black
- 4 ☐ Hispanic
- 5 ☐ White
- 6 ☐ Other (specify) ______

⑤ In the space below, enter your age as of your last birthday.

______ 3 4

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⑥ Please write in the date when you first entered this college to begin work on the degree you will be receiving and the total number of semesters (including summer and the current semester) that you have been enrolled:

______ / ______ month 6 7 year 8 9

______ semesters 10 11

⑦ Using the enclosed list of majors, please write in your majors/programs for the degree you are receiving from this College and the corresponding code in the boxes to the right.

______ ☐☐☐☐ 12 13 14 15

______ ☐☐☐☐ 16 17 18 19

⑧ What is your cumulative grade point average up to the beginning of this semester? (Check one)

20
- 1 ☐ 2.0 or less
- 2 ☐ 2.1 to 2.5
- 3 ☐ 2.6 to 3.0
- 4 ☐ 3.1 to 3.5
- 5 ☐ 3.6 to 4.0

⑨ While you were attending this college, were you a legal resident of the state of Rhode Island? (Check one)

21
- 1 ☐ Yes
- 2 ☐ No, resident of other U.S. state
- 3 ☐ No, resident of foreign country

⑩ Which of the following financial sources did you use to meet the costs of your undergraduate education? (Check all that apply)

- 22 1 ☐ Loans (GSL, FISL, NDSL, other loan)
- 23 1 ☐ Basic Education Opportunity Grant (BEOG)
- 24 1 ☐ Other scholarship or grant
- 25 1 ☐ Summer employment (including CWSP)
- 26 1 ☐ Employment during academic year (including CWSP)
- 27 1 ☐ Veterans' benefits
- 28 1 ☐ Social Security benefits
- 29 1 ☐ Family contribution – personal savings
- 30 1 ☐ Other (specify) ______

⑪ What are your plans for the next year? (Check all that apply)

- 31 1 ☐ Work
- 32 1 ☐ Pursue an educational program
- 33 1 ☐ Military
- 34 1 ☐ Homemaker
- 35 1 ☐ Undecided
- 36 1 ☐ Other (specify) ______

⑫ Indicate which of the following examinations required for graduate study you have taken or plan to take within the next year. (Check all that apply)

- 37 1 ☐ Graduate Records Examination
- 38 1 ☐ Miller Analogies Test
- 39 1 ☐ Aptitude Test for Graduate Study in Business
- 40 1 ☐ Law School Admissions Test
- 41 1 ☐ New Medical College Aptitude Test
- 42 1 ☐ Other (specify) ______
- 43 1 ☐ None

⑬ Have you applied for admission to one or more educational programs (either here or at another college or university) which would result in your earning another degree? (Check one)

44
- 1 ☐ Yes, I have applied
- 2 ☐ No, but I intend to apply within the next six months
- 3 ☐ No, but I plan to apply at some later date
- 4 ☐ No, I have no plans to apply

⑭ Have you been accepted for any of the programs to which you have applied? (Check one)

45
- 1 ☐ The question is not applicable to me because I have not applied to any colleges or universities
- 2 ☐ Yes, I have been accepted
- 3 ☐ No, all my applications have been rejected
- 4 ☐ No, but I have not yet received a reply on all my applications

⑮ Regardless of whether you are going on to another educational program at this time, what is the *highest* degree you eventually intend to complete? (Check one)

46
- 1 ☐ Associate degree
- 2 ☐ Bachelor's degree
- 3 ☐ Master's degree
- 4 ☐ Professional degree (includes only dentistry, medicine, optometry, osteopathy, podiatry, veterinary medicine, law, and theology)
- 5 ☐ Doctor's degree (e.g., Ph.D., Ed.D., D.B.A.)

CONTINUED ON OTHER SIDE

SERIES A 1978

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⑯ How satisfied were you with your experiences at this college in each of the following areas? (Check one answer for each statement)

		Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
a. Your overall impression of general education courses	47	☐	☐	☐	☐
b. Your overall impression of courses in your major program	48	☐	☐	☐	☐
c. The overall quality of instruction	49	☐	☐	☐	☐
d. Availability of courses offered which were of interest to you	50	☐	☐	☐	☐
e. The accessibility of instructors	51	☐	☐	☐	☐
f. Helpfulness of instructors in assisting you with career plans	52	☐	☐	☐	☐

⑰ How satisfied were you with each of the college services listed below? (If you never used a particular service, check the first column and do not rate the item)

		Never Used This Service	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied
a. Admissions	1	☐	☐	☐	☐	☐
b. Records Office/Registrar	2	☐	☐	☐	☐	☐
c. Registration	3	☐	☐	☐	☐	☐
d. Financial Aid Office	4	☐	☐	☐	☐	☐
e. Student Employment Office	5	☐	☐	☐	☐	☐
f. Faculty Academic Advising	6	☐	☐	☐	☐	☐
g. Counseling Services	7	☐	☐	☐	☐	☐
h. Reading Skills Improvement	8	☐	☐	☐	☐	☐
i. Writing Skills Improvement	9	☐	☐	☐	☐	☐
j. Math Skills Improvement	10	☐	☐	☐	☐	☐
k. Testing Services	11	☐	☐	☐	☐	☐
l. Career Development/Placement Office	12	☐	☐	☐	☐	☐
m. Recreation and Athletic Facilities	13	☐	☐	☐	☐	☐
n. Library	14	☐	☐	☐	☐	☐
o. Health Services	15	☐	☐	☐	☐	☐
p. Housing Facilities	16	☐	☐	☐	☐	☐
q. University College (URI only)	17	☐	☐	☐	☐	☐

⑱ How helpful were your experiences at this college in reaching each of the goals listed below? (If a statement was *not* a goal of yours, check the first column and do not rate this goal)

		This Was Not a Goal of Mine	This College Was Not Much Help	This College Was Some Help	This College Was a Great Deal of Help
a. To increase my knowledge in my academic field	18	☐	☐	☐	☐
b. To discover my vocational interest	19	☐	☐	☐	☐
c. To prepare for a new career	20	☐	☐	☐	☐
d. To improve my knowledge and technical skills required in my present job	21	☐	☐	☐	☐
e. To increase my chances for a possible raise and/or possible promotion in my present job	22	☐	☐	☐	☐
f. To learn specific skills that will enrich my daily life	23	☐	☐	☐	☐
g. To improve my ability to get along with people	24	☐	☐	☐	☐
h. To become actively involved in student life and campus activities	25	☐	☐	☐	☐
i. To increase my participation in cultural and social events	26	☐	☐	☐	☐
j. To improve my self image	27	☐	☐	☐	☐
k. To meet people	28	☐	☐	☐	☐
l. To improve my leadership skills	29	☐	☐	☐	☐
m. Other (please specify) ______	30	☐	☐	☐	☐

⑲ Do you currently hold or have you secured a full time job (35 hours or more a week) in which you plan to work once you complete your studies? (Check one)

31
- 1 ☐ Yes (Go to question 20)
- 2 ☐ No (Skip to question 24)

⑳ In what state is the job/occupation? (Check one)

32
- 1 ☐ Rhode Island
- 2 ☐ Other New England State
- 3 ☐ Other State Outside of New England
- 4 ☐ Other (specify) ______

㉑ What is the job/occupation? (In the space below, enter the occupation from the enclosed list that is most appropriate, then write the code number for that occupation in the boxes at the right)

______ ☐☐☐ 33 34 35

㉒ If this job is not related to your major/program, what is the principal reason? (Check one)

36
- 1 ☐ Not applicable to me – my job is directly related to my major/program
- 2 ☐ Not applicable – my job is somewhat related to my major/program
- 3 ☐ I did not look for a job related to my major/program
- 4 ☐ I looked, but could not find a job related to my major/program

㉓ Which statement *best* describes how you regard this job at this time? (Check one)

37
- 1 ☐ Temporary job until a better one can be found
- 2 ☐ Temporary job while waiting to report to a new job
- 3 ☐ Temporary job to earn money to do something else (travel, school, have free time, etc.)
- 4 ☐ Job to earn money while I decide what kind of work I want
- 5 ☐ Job with *possible* career potential
- 6 ☐ Job with *definite* career potential

GO TO QUESTION 27

㉔ Are you currently seeking or planning to seek (within six months) a full-time job (35 hours or more a week)? (Check one)

38
- 1 ☐ Yes (Go to question 25)
- 2 ☐ No (Skip to question 27)

㉕ What is the type of job/occupation you are seeking? (In the space below, enter the occupation from the enclosed list that is most appropriate, then write the code number for that occupation in the boxes at the right)

______ ☐☐☐ 39 40 41

㉖ In what state are you seeking this job/occupation? (Check all that apply)

- 42 1 ☐ Rhode Island
- 43 1 ☐ Other New England State
- 44 1 ☐ Other State Outside of New England
- 45 1 ☐ Other (specify) ______

㉗ What is your long-term job/career goal? (In the space below, enter the occupation from the enclosed list that is most appropriate, then write the code number for that occupation in the boxes at the right)

______ ☐☐☐ 46 47 48

㉘ Knowing what you know now, would you have chosen a different program of study? (Check one)

49
- 1 ☐ No
- 2 ☐ Yes, would have changed major field
- 3 ☐ Yes, would have taken additional courses in preparation in other areas
- 4 ☐ Other (specify) ______

㉙ Given what you know now and given your situation before your first enrollment at this college, would you choose this college again? (Check one)

50
- 1 ☐ Yes
- 2 ☐ No
- 3 ☐ Not sure

㉚ What are your immediate (1-year) plans in terms of residence? (Check one)

51
- 1 ☐ Rhode Island
- 2 ☐ Other New England State
- 3 ☐ Other State Outside of New England
- 4 ☐ Not sure at this time
- 5 ☐ Other (specify) ______

㉛ What are your long-term plans in terms of residence? (Check one)

52
- 1 ☐ Rhode Island
- 2 ☐ Other New England State
- 3 ☐ Other State Outside of New England
- 4 ☐ Not sure at this time
- 5 ☐ Other (specify) ______

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☐☐☐☐☐☐☐☐☐ 67 68 69 70 71 72 73 74 75 ☐☐☐☐ 76 77 78 79

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TOWARD THE VALIDATION OF TINTO'S MODEL OF COLLEGE STUDENT ATTRITION: A REVIEW OF RECENT STUDIES

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State University of New York at Albany
Ernest T. Pascarella
University of Illinois at Chicago Circle

Since the early 1970's, several explanatory theories of college student attrition have been developed in attempts to lend some conceptual coherence to the substantial body of research on dropouts (Spady, 1970; Kames, 1971; Tinto, 1975). The development of these theories suggests that the study of the attrition process may have moved into a more advanced and potentially more fruitful stage, and as the conceptual adequacy of these models is tested, more focused research and clearer understanding of the dynamics of dropping out should emerge. Moreover, the identification of areas of institutional life which are most closely associated with attrition--and which are amenable to influence through policy and program modification and development--should also benefit administrators seeking to reduce the misexpenditure of individual and institutional resources associated with student attrition.

Of these emerging models, Tinto's (1975) is perhaps the most comprehensive and probably the best known. This paper describes the salient findings of five studies designed to assess the construct validity of that conceptual framework.

In brief, the Tinto model views attrition as a longitudinal process involving a complex series of socio-psychological interactions between the student and the institutional environment. According to this theory, the student brings to college such characteristics as family background and personal attributes and experiences, each of which is presumed to influence not only college performance, but also initial levels of goal and institutional commitment. These characteristics and commitments, in turn, interact with various structural and normative features of the particular college or university and lead to varying levels of goal and institutional commitment. These characteristics and commitments, in turn, interact with various structural and normative features of the particular college or university and lead to varying levels of integration into the academic and social systems of the institution. According to Tinto: "Other things being equal, the higher the degree of integration of the individual into the college's (academic and social) systems, the greater will be his commitment to the specific institution and to the goal of college completion" (Tinto, 1975, p. 96).

DESIGNS AND METHODS

The five studies to be described draw on one or more of three, independent random samples of freshmen entering Syracuse University in the three successive fall semesters between September, 1974 and September, 1976. Table 1 summarizes the characteristic features of those three data sets.

TABLE 1

CHARACTERISTICS OF THREE DATA SETS

		Cross-Sectional	Longitudinal	Longitudinal
Design Characteristic	Dates:	3/75	8/75-4/76	8/76-4/77
Sampling Design		Simple Random	Simple Random	Simple Random
Initial Sample Size		500[a]	1,008	1,905
Usable Responses:				
Pre-Matriculation (July-August)		--	766 (76%)	1,457 (76%)
Post-Matriculation (March-April)		379 (76%)	536 (70%; 53% of Orig.)	773 (53%; 41% of Orig.)
Representativeness of Respondents		Yes	Yes	Yes
% Voluntary Leavers		15.8%	16.8%	11.6%
Data Source for Studies		No. 1	Nos. 2, 3 & 4	No. 5

[a] Sample drawn from College of Arts and Sciences freshmen only. Other samples drawn from populations of all entering freshmen.

As the table indicates, response rates were acceptably high for each data collection, and statistical tests indicate that respondents in each data set were representative of the populations from which they were drawn with respect to sex, college of enrollment (in the two longitudinal data collections), and academic aptitude (as measured by the Scholastic Aptitude Tests).

Table 2 summarizes the designs and methods used in the five studies. The numbers assigned to the studies indicate the chronological order in which they were conducted. Three of the five studies addressed the construct validity of the overall model, whereas the other two (Nos. 2 and 4) focused on one component of the model. All of the studies appear to have a sufficient number of respondents in each of the two analytical groups to yield relatively stable results. Two of the three studies concerned with the comprehensive model used the Adjective Rating Scale (Kelly, Pascarella, Terenzini, & Chapman, 1978); the third employed a measure specifically designed to operationalize the key constructs of the Tinto model. Each scale of these instruments appears to meet accepted standards of internal consistency reliability.

The data sets and the studies based on them are limited, however, in several respects. First, they were conducted at a single institution, and the nature of the entering students and their freshman year experiences may or may not be representative of those at other institutions. Second, the variables used in these studies probably only begin to reflect the complexity of the model's major constructs. Third, while the model is intended to explain the attrition process throughout undergraduate students' academic careers, these particular studies focused on the freshman year as the period immediately preceding the peak of withdrawal activity. Finally, the model is concerned with predicting (and differentiating between) voluntary attrition and academic dismissal; these studies have been confined to students who left voluntarily.

TABLE 2

SELECTED CHARACTERISTICS OF FIVE STUDIES OF ATTRITION AMONG FRESHMEN

Study Characteristic	STUDY 1[a] (Terenzini & Pascarella, 1977)	STUDY 3 (Terenzini & Pascarella, 1978)	STUDY 5 (Pascarella & Terenzini, 1978b)	STUDY 2 (Pascarella & Terenzini, 1977)	STUDY 4 (Pascarella & Terenzini, 1978a)
Focus of Study	Overall Model	Overall Model	Overall Model	Faculty Contact	Faculty Contact (Re-analysis of Study 2)
Data Base Design	Cross-Sectional[b]	Longitudinal	Longitudinal	Longitudinal	Longitudinal
Data Collection Years	1975	1975-76	1976-77	1975-76	1975-76
Sample Sizes (Usable Responses):					
Voluntary Leavers	63	90	61	90	90
Stayers	63	428	436	428	428
Validation Sample	253	N.A.	29 Leavers 237 Stayers	N.A.	N.A.
Primary Analytical Methods	3 Discriminant Function Analyses	Setwise Multiple Regression	Setwise Discriminant Function Analysis	Discriminant Analysis of Residuals	Multiple Regression & Partial Correlations
Principal Measures	Adjective Rating Scale	Adjective Rating Scale	Special Design	Frequency of Contact with Faculty in 6 Settings	Frequency of Contact with Faculty in 6 Settings
No. of Scales/Reliability[c] Ranges of Scales	8/.69 - .94	8/.80 - .98	5/.71 - .83	N.A.	N.A.

[a] Study number sequence is chronological.

[b] Sample drawn from College of Arts & Sciences freshmen only. Other samples drawn from populations of all entering freshmen.

[c] Coefficient Alpha.

SUMMARY OF RESULTS

Table 3 summarizes the salient results of the five studies, and several patterns are identifiable. First, as Part A of Table 3 shows, despite the conceptual importance given to students' background characteristics in both Tinto's model and the conventional wisdom, in none of these studies were statistically reliable differences found between voluntary leavers and stayers with respect to any of a wide range of characteristics students bring with them to college. As will be seen, however, even if background traits are not particularly important in themselves, they do appear to be influential in their interactions with the students' experiences following enrollment.

Second, in all studies of the overall model (Nos. 1, 3 and 5), variable sets operationalizing the model's two major constructs (social and academic integration) both made statistically significant contributions to the explanation of variance in group membership (leaver v. stayer). In the case of Studies 3 and 5, these contributions remained even after a considerable number and variety of students' background characteristics and expectations of college had been statistically controlled; that is, students' levels of social and academic integration appear to be influential in the attrition process, even after initial individual differences are taken into account.

The relative importance of the two sets remains somewhat ambiguous, however. Whereas Study 1 results suggested that social integration considerations may be more influential than the academic factors, the order of importance is reversed in the results of Study 3. In Study 5, an assessment of relative importance was not made; social and academic integration indicators were analyzed as a composite.

A third pattern is identifiable in Part A of Table 3. In the two studies in which interactions between selected background characteristics and the academic and social integration component scales were tested (Nos. 3 and 5), the interaction sets made statistically significant contributions to the explanation of variance in attrition status even after all other background traits and social and academic integration variables had been controlled. Thus, from two separate studies on independent samples, using different measures, it would appear that certain features of the institutional experience have different influences on different kinds of students.

Finally, with respect to Part A of Table 3, in no study was it possible to explain more than 30 percent of the total variation in group membership. While these results compare favorably with those of other studies (Spady, 1971; Astin, 1975), it appears that we still have a considerable way to go in fully understanding the dynamics of the attrition process.

Part B of Table 3 lists (in approximate order of importance) those individual variables that made statistically significant contributions to the explanation of variance in group membership. The most striking pattern is the consistent relative importance of students' informal contacts with faculty members outside the classroom. In all three of the studies based on the overall Tinto model, informal student-faculty interaction was either the most, or second-most, important single variable. Studies 1 and 3 employed simply the number of contacts students reported having with faculty members outside the classroom as an index of social integration (type of contact was unassessed); in Study 5, the principal focus was on the nature of, or attitudes toward, the contacts students had with faculty members. (In Tinto's model, student-faculty interaction is conceptually assigned to the social integration domain of the model, and it was treated accordingly in these studies. Tinto does, however, acknowledge that such interaction is likely to be influential in both academic and social integration.)

Because of the conceptual importance of faculty contact in the model, and because of the strength of its influence in Study 1, two additional analyses of the 1975-76 longitudinal data file were made. In these studies (Nos. 2 and 4), total frequency of contact with faculty was disaggregated into its component frequencies in six settings: 1) to get basic information and advice about academic programs; 2) to discuss matters related to future careers; 3) to help resolve a disturbing personal problem; 4) to discuss intellectual or course-related matters; 5) to discuss a campus issue or problem; and 6) to socialize informally. In the first of these analyses, selected background traits were statistically controlled, and frequencies of contact in each of the six settings for men and women combined were analyzed for their influence on attrition. In the second study, basically a re-analysis of the first, additional control variables were added, including other measures of social and academic integration that had been used in Studies 1 and 3. Analyses were also made for each sex separately, as well as together.

As Part B of Table 3 shows, not all forms of student-faculty contact are equally important: the single most positive and important type of contact was that involving discussions of intellectual and course-related matters--for both sexes, whether analyzed separately or combined. Discussions with faculty centering on career concerns were also significantly and positively related to retention for the combined analysis of Study 2. Interestingly, in Study 4, results suggested that contacts with faculty to get course or program information, or to discuss career concerns, were important in the retention of men, but not of women. On the other hand, contacts to socialize informally were positively and significantly related to retention among women, but not among men.

Another pattern is identifiable in Table 3. Studies 3 and 5 both attempted to assess the degree to which level of social and academic integration were different for different kinds of students, that is, the degree to which students' backgrounds and post-matriculation experiences interacted (were

TABLE 3

SUMMARY OF RESULTS OF FIVE VALIDATIONAL STUDIES OF TINTO (1975) MODEL

Results	STUDY 1 (Terenzini & Pascarella, 1977)	STUDY 3 (Terenzini & Pascarella, 1978)	STUDY 5 (Pascarella & Terenzini, 1978b)	STUDY 2 (Pascarella & Terenzini, 1977)	STUDY 4 (Pascarella & Terenzini, 1978a)
A. % of Total Variance Explained by:				Do not apply. These studies focused on frequency of student-faculty contacts in six different settings.	
Background Traits	--[a]	3.7%	4.5%		
Academic Integ. Vars.	12.6%**	5.6%***	21.5%***		
Social Integ. Vars.	20.1%***	3.0%*	5.0%*		
Interactions (B'ground x Integ. Vars)	N.A.	10.6%*	5.0%*		
Total Variance Explained	24.6%[b]***	25.6%***	30.9%***		
B. Significant Main Effects Variables	Combined Sets: Demand/Challenge # Faculty Contacts Social Integ. Set: # Faculty Contacts Demand/Challenge Interest Value Academic Integ Set: Interest Value	# Faculty Contacts Affective Appeal of Acad. Prog. Dullness of Acad. Prog. (neg. weight)	Institutional & Goal Commitments Interactions w/ Faculty (Quality) Faculty Concern w/Std. Devel. & Teaching	Discuss Intellectual & Course Matters Discuss Career Concerns	Discuss Intellectual Matters (Both Sexes) Socialize informally (Women) Get Course Info. (Men) Discuss Career Concerns (Men)
C. Significant Interactions	Does not apply	Race/Eth. Origin x Perceived Intellectual Progress Race/Eth. Origin x Affective Appeal of Acad. Prog. Sex x Challenge of Acad. Prog. (impt. for women) Prog. x Extra-Curricular Activities	Sex x Peer Group Interactions (impt. for women) Sex x Inst. & Goal Commitments (impt. for men)	Does not apply	Does not apply

[a] Post hoc tests done; no significant differences found.

[b] This figure is based on an analysis using only those variables in the social & academic integration sets that were significantly related to attrition. Thus, Total Variance Explained is less than the sum of variance explained by each full set.

*p < .05 **p < .01 ***p < .001

jointly involved) in students' decisions to remain or withdraw from the university. As Part C of Table 3 shows, in both studies statistically significant, unique interactions were found: that is, certain background by experience interactions persisted even after all other variables and interaction terms had been taken into account. Of the six significant and unique interactions identified in the two studies combined, three involved the respondent's sex: 1) sex by the amount of challenge found in the academic program (Study 3; the greater the challenge, the more likely women were to remain enrolled); 2) sex by peer group contacts (Study 5; the more positive the perception of these peer contacts, for women, the greater the likelihood of retention); and 3) sex by institutional and goal commitments (Study 5: positive relation, but only for men).

CONCLUSIONS

Several general conclusions seem to be warranted on the basis of the evidence from these five studies. First, Tinto's (1975) model of college student attrition appears to be a conceptually useful framework for thinking about the dynamics of dropping out--whether by researchers for purposes of future study, or by administrators for practical action. Operational indicators of both social and academic integration were consistently found to have statistically significant (if sometimes modest) associations with freshman attendance patterns. These studies also suggest, however, that only about 25-30 percent of the variation in attrition status among freshmen at one institution is attributable to the operational measures. Evidently, a number of other factors, unaddressed in these studies (or perhaps idiosyncratic to this institution) are also involved.

Second, at least on this campus, the characteristics that students bring with them to college do not appear to be significant factors--in themselves--in students' subsequent attendance behaviors. In none of the five studies could reliable predictions of attrition status be made solely on the basis of precollege characteristics.

Third, the frequency of students' informal contact with faculty members outside the classroom was consistently found to be positively related to the likelihood of freshman year persistence. In the only study that addressed the matter, the nature of that contact was also found to be positively related to retention. But not all forms of student-faculty contact are equally important. For both men and women, contacts with faculty involving discussions of intellectual or course-related matters appear to promote continued enrollment. Discussions of career concerns, and those centering on course or program information, appear to be influential in the decisions of men to stay in school, but not in similar decisions of women. On the other hand, contacts with faculty to socialize informally appear to promote retention among women, but not men.

The apparent differential influence of different types of contact with faculty on men and women is consistent with a fourth salient pattern in the studies. It has been noted that background characteristics are apparently not of much use, by themselves, in explaining attrition. These traits do, however, appear to be important in the manner in which they interact with certain features of the institutional environment or experience of the student. One implication of these findings, from both a conceptual and research point of view, is that the attrition process appears to be a far more complex phenomenon than we have tended to think it is; certainly, the bulk of the dropout research fails to take into account the web-like network of relations between and among variables to which these studies have begun to point. Unless the designs of future studies are sensitive to the possibility of important background by experience interactions, they are unlikely to meet the expectations of either researchers or administrators for them. From an administrative point of view, the evidence points toward a possible need for flexibility in the development of policies and programs intended to reduce current attrition levels: what works with one kind of student may not with another kind.

Finally, the need for greater attention to the frequency and nature of student-faculty contact seems clear--whether for theoretical or practical reasons. Certainly more research is needed to clarify what appears to be a pivotal role of informal contact with faculty in the socialization of students, in both social and academic domains. The evidence also has implications for a wide range of administrative activities, including the freshman orientation process, residence hall programming, and faculty recruitment and reward systems. These studies suggest a need for closer attention to this area of academic life--by both researchers and administrators.

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UNDERGRADUATE RETENTION: DESCRIPTION OF STUDENT FLOW MODEL INCLUDING APPLICATIONS

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ABSTRACT

A recurrent need of planners and managers in higher education is accurate predictions of the number of students remaining at their institutions from one semester to the next. Setting admissions policy is the most obvious area of application, but many student-related policy decisions are likely to be impacted. The prediction model described in this paper provides projections of the expected number of maintained students by class and in total. The model data base consists of readily available semester headcount enrollment figures and new admissions data for freshmen, transfer and re-entering students. The model allows fairly rapid development of maintenance projections for each class and for the total institution based on a chosen number of years of data. Description of the model and of the use of the model's predictions in several management decisions at the University of Massachusetts at Amherst is included. In addition, the validity of the projections is judged by comparison with actual enrollment data for the fall of 1978.

Introduction

The question of retention has been studied on many levels. Astin (1972) and Cope (1975) among others have considered causes and consequences of dropping out of post-secondary educational institutions. NCHEMS (1976) has written a step-by-step guide to conducting a mail survey of attrition. Gilbert and Lueck (1975) discuss application of a student flow model which requires the on-going existence of a fairly detailed data base. Farago (1977) has prepared a selected bibliography on the topic of retention and attrition.

The *raison d'etre* for the model described below was an anticipated usefulness for management decision-making. Accurate projections of future student enrollments were not being provided at the University of Massachusetts in Amherst and the data needed for the Gilbert and Lueck (1975) approach was not available. The enrollment projection problem can be divided into two general areas:

1. Short-term projections needed to plan for the coming semester.

2. Long-term projections of trends in enrollment, particularly the demand for specific fields and overall demand for admission to the institution.

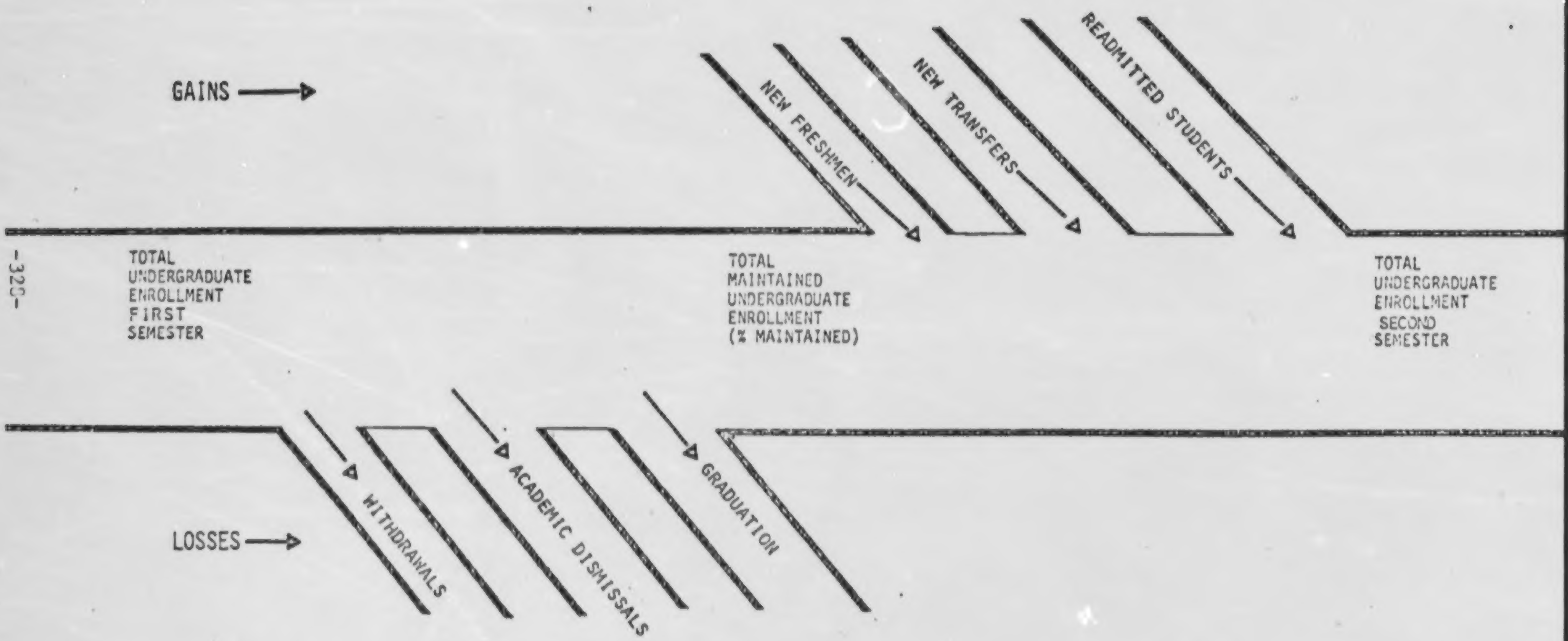
The model described below is a statistical approach to answering the first need, short-term projections of undergraduate enrollment. Although the model is described in the context of its application at the University of Massachusetts in Amherst, it is readily generalizable to any institution of higher education.

Description of the Model

The Student Flow Model defines maintenance, measured from semester to semester, as the number of students remaining in a class after one semester. A schematic view of the methodology employed (the Pipeline Analogy) is provided in Figure 1. As can be seen, the maintained enrollment for any semester is set equal to the total enrollment of the next semester minus additions to enrollment, i.e. minus the number of new freshman admissions, new transfer admissions, and readmitted students. The maintained enrollment for each class (freshmen, sophomores, juniors, and seniors) is similarily calculated by stratifying semester enrollment by class, stratifying new admissions (freshmen, transfers, and re-entering) by class and applying the same methodology. For example, maintained sophomore enrollment equals second semester sophomore enrollment, minus new sophomore transfer students, and minus sophomore readmitted students.

The maintained enrollment is then compared to the first semester enrollment and a maintenance rate is calculated for each class and for the total undergraduate student population. The predicted maintenance rate is calculated as the average maintenance rate of the last n years. (n = 10 years was chosen for the University of Massachusetts). A confidence interval is calculated by assuming that the maintenance rates for

FIGURE I: GRAPHIC REPRESENTATION OF STUDENT FLOW MODEL-THE PIPELINE ANALOGY


GAINS
NEW FRESHMEN
NEW TRANSFERS
READMITTED STUDENTS
TOTAL UNDERGRADUATE ENROLLMENT FIRST SEMESTER
TOTAL MAINTAINED UNDERGRADUATE ENROLLMENT (% MAINTAINED)
TOTAL UNDERGRADUATE ENROLLMENT SECOND SEMESTER
LOSSES
WITHDRAWALS
ACADEMIC DISMISSALS
GRADUATION

MAINTAINED ENROLLMENT = TOTAL UNDERGRADUATE ENROLLMENT SECOND SEMESTER − NEW FRESHMEN ADMISSIONS FOR SECOND SEMESTER − NEW TRANSFER ADMISSIONS FOR SECOND SEMESTER − READMITTED STUDENTS FOR SECOND SEMESTER each year are samples from a normal distribution. This assumption is supported by the fact that at the University of Massachusetts in Amherst the mean maintenance rate for the past ten years was not a function of either the year or the size of the class.

The Student Flow Model thus uses aggregate data to produce maintenance projections with associated error bands while requiring only the most basic data: total enrollment and new admissions by semester. An example of the Student Flow Model for the total undergraduate population from the spring of 1975 to the fall of 1975 at the University of Massachusetts in Amherst is as follows:

STUDENT FLOW MODEL
TOTAL UNDERGRADUATE MAINTENANCE RATE
SPRING 75 TO FALL 75

SPRING 75 ENROLLMENT	NUMBER OF STUDENTS MAINTAINED	PERCENT MAINTAINED	NEW STUDENTS-FALL 75			FALL 75 ENROLLMENT
			FRESHMEN	TRANSFERS	RE-ENTERING	
18,804	13,598	72.3%	3,737	1,789	672	19,796

As noted above, the model can also be used to make projections of maintenance by class. There is an additional concern when making projections for a specific class because students may change their year of graduation and effectively move from one class to another. If this data is available, it can easily be incorporated into the model. However, at the University of Massachusetts in Amherst the changed year of graduation data was not readily available and thus, is accounted for only in the error band associated with the predictions.

Since data available did not allow the monitoring of individual students and their progress through the University, there are a number of unknown additions and subtractions from the student population due to change of class, reassignment of transfer students to a different class, addition of exchange students, etc. which introduce an unknown systematic error into the results. In addition, accurate data on withdrawals was not available. The maintenance rate will further be affected by external factors such as the ending of the draft, removal and reinstitution of the "F" in calculating academic averages, the declining or improving job market for college graduates, etc. This model does not attempt to determine the causality relationship underlying the observed maintenance rate. Of course, any additional insight which can be provided to help explain the calculated maintenance rate can only improve related decision making.

Results at the University of Massachusetts at Amherst

Ten years of aggregate enrollment and admissions data were analyzed for the University of Massachusetts at Amherst. The resulting average maintenance rates are detailed in Table 1 which follows.

Table 1

AVERAGE MAINTENANCE RATES
UNIVERSITY OF MASSACHUSETTS/AMHERST
1968-1977

Spring Semester	To	Fall Semester	Mean Maintenance Rate	95% Confidence Interval
Freshmen		Sophomores	85.4%	+/- 2.6%
Sophomores		Juniors	83.9	+/- 4.6%
Juniors		Seniors	100	+/- 5.4%
Seniors		Seniors	-0-	(by definition)
Total Undergraduate Enrollment		Maintained Undergraduate Enrollment	71.5	+/- 2.3%

Mean Graduation Rate Spring Semester 18.2%

Fall Semester	To	Spring Semester	Mean Maintenance Rate	95% Confidence Interval
Freshmen		Freshmen	93.1%	+/- 1.7%
Sophomores		Sophomores	93.5	+/- 2.2%
Juniors		Juniors	90.0	+/- 2.2%
Seniors		Seniors	79.6	+/- 2.1%
Total Undergraduate Population		Maintained Undergraduate Population	89.0	+/- 1.2%

Mean Graduation Rate Fall Semester 3.9%

Applications

Average maintenance data were used to make specific projections for the maintained undergraduate student population for the fall of 1978. As of May, 1978 the expected number of maintained undergraduate students for the fall of 1978 was predicted to be 12,400 +/- 400 students. To be 95% sure of reaching a minimum undergraduate population of 18,500 students in the fall, approximately 5,900 new freshmen and transfer students, along with about 600 readmitted students or a total of about 6,500 incoming students would have to be enrolled. Projections by class provided some indication of where transfer students could most easily be accommodated (see Table 2).

The admissions target for the fall of 1978, developed on the basis of the recommendations resulting from the student flow model, were set at 4,200 new freshmen and 1,800 new transfer students. The actual number of maintained undergraduate students in the fall of 1978 equalled 11,973; this is the lower limit of the 95% confidence interval for the projection of 12,400 maintained students. The actual maintained enrollment by class ranged both above and below the projected maintained enrollment but again was within or only slightly beyond the 95% confidence interval assigned to the prediction (see Table 2). Since 4,111 new freshmen, 1,736 new transfer students, and 698 readmitted students enrolled for the fall of 1978, the total undergraduate population as of October 1, 1978 equalled 18,518. This undergraduate population compares very favorably to the desired undergraduate population of 18,500.

Table 2

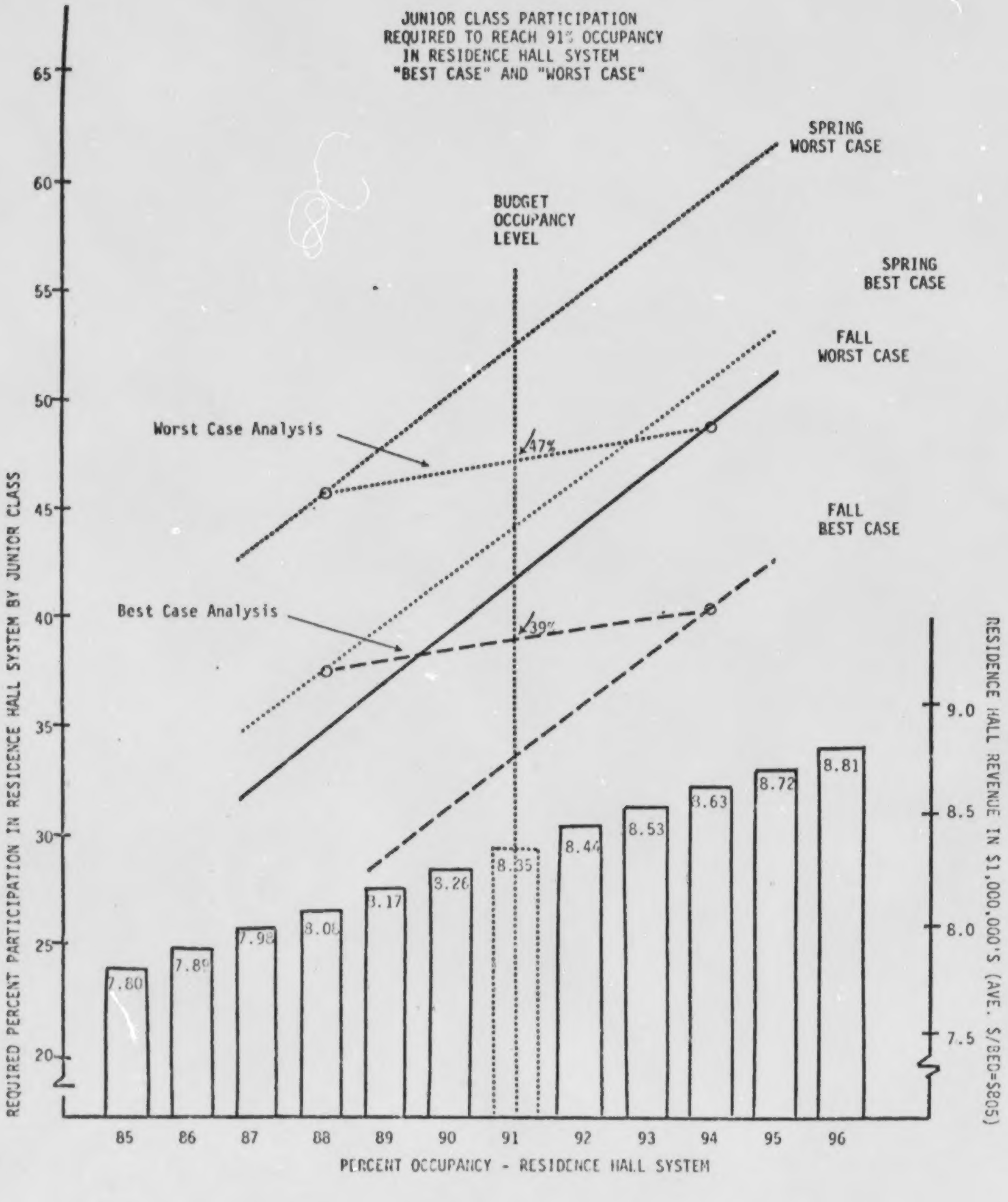
ACTUAL MAINTAINED UNDERGRADUATE ENROLLMENT VERSUS PROJECTED MAINTAINED ENROLLMENT FOR FALL 1978 UNIVERSITY OF MASSACHUSETTS/AMHERST

Population of Interest	Spring 78 Enrollment	Projected Fall 1978 Maintained Enrollment (May 1978)	95% Confidence Interval	Actual Fall 1978 Maintained Enrollment (September 1978)	Actual Predicted
Class of 1978	3,788	- 0 -	N/A	N/A	N/A
Class of 1979	4,344	4,350	+/- 200	4,568	218
Class of 1980	3,901	3,270	+/- 250	2,951	-319
Class of 1981	4,403	3,760	+/- 100	3,641	-119
Class of 1982	468	300	+/- 50	354	54
Other	491	490	N/A	N/A	N/A
Total Undergraduate	17,335	12,400	+/- 400	11,973	-427

A second area of application occurred during analysis of the "junior voluntary" residence halls policy. Prior to the fall of 1978, juniors were required to live on campus in the residence halls. The Vice Chancellor for Student Affairs asked for assistance in evaluating the effect of a "junior voluntary" policy, i.e. the effect on residence hall rates if juniors were allowed to decide to live off campus.

Using the enrollment model described above together with admission targets, enrollment by class was projected for the fall of 1978. Combining predicted enrollment with historically observed residence hall participation rates by class, allowed projections of residence hall occupancy by freshmen, sophomores, seniors and graduate students. Knowing that a 91% average occupancy rate was required to meet financial obligations, a best case/worst case analysis was performed which illustrated the financial risk associated with instituting a "junior voluntary" policy by detailing the voluntary participation required of the junior class to reach 91% occupancy in the Residence Hall System. The voluntary participation by juniors needed to reach 91% occupancy was then compared to the 55% to 60% average participation rate for juniors achieved with the previous mandatory policy. The analysis, illustrated in Figure 2, allowed realistic measures of the trade-offs between the improved programatic aspects of a "junior voluntary" residence hall policy and the increased financial risk incurred. The Vice Chancellor recommended institution of a "junior voluntary" policy in a letter to the Board of Trustees which included Table 2 and a description of the risks involved. The Trustees approved the change in policy for the fall semster, 1978.

Figure 2


JUNIOR CLASS PARTICIPATION
REQUIRED TO REACH 91% OCCUPANCY
IN RESIDENCE HALL SYSTEM
"BEST CASE" AND "WORST CASE"
SPRING WORST CASE
SPRING BEST CASE
FALL WORST CASE
FALL BEST CASE
BUDGET OCCUPANCY LEVEL
Worst Case Analysis
Best Case Analysis
47%
39%
REQUIRED PERCENT PARTICIPATION IN RESIDENCE HALL SYSTEM BY JUNIOR CLASS
65
60
55
50
45
40
35
30
25
20
RESIDENCE HALL REVENUE IN $1,000,000'S (AVE. $/BED=$805)
9.0
8.5
8.0
7.5
7.80
7.89
7.98
8.08
8.17
8.26
8.35
8.44
8.53
8.63
8.72
8.81
85
86
87
88
89
90
91
92
93
94
95
96
PERCENT OCCUPANCY - RESIDENCE HALL SYSTEM

The occupancy rate in the residence halls at the University of Massachusetts in Amherst as of October 1, 1978 was over 96%. Thus the "junior voluntary" policy allowed programs in the dormitories to be aimed at freshmen and sophomores while financial obligations of the Residence Hall System continued to be met.

Summary

The student flow model described in this paper allows a rapid estimate of retained enrollment based on a readily available data base: semester headcount enrollment and semester admissions data. The method avoids dependence on computer modeling or complex mathematical formulas. The results obtained are thus readily understandable and easily accepted by university administration. The usefulness of the results are illustrated by two examples involving major management decisions at the University of Massachusetts at Amherst.

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RETENTION: THE FLIP SIDE OF RECRUITMENT

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Introduction

Undergraduate enrollments are affected not only by an institution's ability to recruit and enroll new students but also by its ability to retain students after they enroll. In terms of sheer numbers, the attrition problem deserves attention. A yearly loss of over 8,400 Penn State students has a heavy impact on institutional operations and finances. For every 10 students who enter Penn State as freshmen, only five graduate four years later. One more graduates at the end of a fifth year. This means that of the 8,700 undergraduate students who enrolled as baccalaureate freshmen at Penn State in 1977, 18 percent dropped out during the first year. If this trend continues 28 percent will drop out by the end of the second year and the remaining 13 percent will leave at some point during the third, fourth, or fifth years. Assuming an average dropout rate over five years of 41 percent, the yearly loss in tuition is approximately $10 million.

The objective of this study is to divide the 1977 Penn State undergraduate population into two groups--persisters and dropouts--and to analyze each group in terms of demographics, academic performance, and degree of social integration. This paper discusses the latter variable, social integration, as it relates to the attrition population. Recently, studies by Astin,[1] Tinto,[2] and others have demonstrated that persistence in a college or university is strongly correlated with a student's social integration: i.e., the greater the integration, the less likely the student is to leave the institution. Social integration occurs primarily through (1) informal peer group associations such as those formed in residence halls or on a job, (2) extracurricular activities such as student government, fraternities and sororities, intramurals, etc., and (3) interaction with faculty and administrative personnel through such means as academic advising or financial counseling. Tinto has found that peer group associations appear to be most directly related to social integration. Extracurricular activities and faculty interactions appear to be of approximately equal secondary importance.

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[1] Astin, Alexander. Preventing Students from Dropping Out (San Francisco: Jossey-Bass, Inc., 1977).

[2] Tinto, Vincent. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research," Review of Educational Research 45 (Winter 1975), 89-125.

A telephone questionnaire was designed to probe the extent of social integration at Penn State and to begin to identify factors in the university environment which affect student attrition. Items on the questionnnaire dealt with the three major areas of social integration mentioned earlier--peer group associations, extracurricular activities, and interaction with faculty and counselors.

The attrition population analyzed in this study consisted of approximately 8,400 students and included all undergraduates who met the following criteria: (1) enrolled at Penn State during at least one term in the 1977 calendar year, (2) did not enroll in 1978 and (3) did not graduate. Included were academic drops, leaves of absence, voluntary withdrawals, and transfers. A six percent stratified random sample was selected for the telephone survey of the attrition population. Baccaluareate, associate and nondegree dropouts were included from each of 19 Penn State campuses. Five hundred twenty-five former students were interviewed to probe the extent of their social integration at Penn State. The following data will give a preliminary look at some of the information obtained from the telephone survey.

Results

Former students were asked to rate, on a scale of one to five with one lowest, the following academic variables (see Figure 1):

	Mean	Median	Standard Deviation
"How would you rate the overall quality of instruction you received at Penn State, that is, such things as teaching ability of your professors, class size, and so on."	3.6	3.7	.9
"How would you rate your faculty advisor on a scale of one to five with regard to helping you with your career plans?"	3.3	3.4	1.4
"How would you rate your faculty advisor as to availability?"	3.5	3.6	1.3
"How satisfied were you with your major, that is, curriculum, content, number of courses, and so on?"	3.4	3.6	1.3

When asked "What extracurricular activities did you participate in while at Penn State and how would you rate your involvement, on a scale of one to five, one being the least active and five being very active?" the following results were obtained (see Figure 1):

	Percent	Mean	Median	Standard Deviation
Religious organization	1	2.9	3.0	1.6
Student government	2	3.8	4.0	1.3
Residence hall organization	3	3.3	3.3	1.3
Social fraternity or sorority	3	4.1	4.6	1.3
Special interest organization	14	3.5	3.6	1.3
Intramural or sports club	23	3.8	4.0	1.2

When dropouts were asked, "Did you receive any counseling while enrolled at Penn State and if so, how helpful was it, one being least satisfactory and five most satisfactory?" of the 51 percent who responded positively, the following breakdown was obtained (see Figure 1):

	Percent	Mean	Median	Standard Deviation
Career counseling	25	3.6	3.8	1.2
Academic counseling (other than faculty advisor)	23	3.7	4.0	1.3
Financial	21	4.0	4.3	1.2
Psychological	5	3.5	3.9	1.5

Responses to the question "How did you finance the last term of school?" were as follows: parental support, 45 percent; student savings, 36 percent; grants, 28 percent; work off-campus, 25 percent; loans, 23 percent; benefits (GI, PSU), 7 percent; scholarships, 4 percent; work on-campus, 3 percent (see Figure 2). Seventy-two percent of the sample said they have never changed majors, 85 percent replied "yes" when asked if they had intended to complete a degree when they enrolled at Penn State, and 80 percent said Penn State was their first choice. Twenty-nine percent of those surveyed were enrolled in school (trade school, community college, four-year college or university) and 59 percent were employed at the time of the survey. Of those not enrolled in school at the time of the survey, 50 percent said they planned to return to college "in the near future."

When asked "Where did you live each term you attended Penn State?" 62 percent of the surveyed population had lived at home for at least one term, twenty-one percent had lived in a dorm, 19 percent in an apartment or room, and one percent had lived in a fraternity or sorority. Nearly three-fourths of the attrition sample had spent one year or longer in a given type of residence.

When asked their reasons for withdrawing from the University (or if the individual was an academic drop the question was phrased, "What do you feel were the causes of your academic difficulties?" responses were categorized into four areas: academic, financial, employment and personal.

	Percent*
Academic	72
Transferred to another institution	21
Unhappy with major	15
Low grades	15
Undecided about choice of major	12
Personal	54
Lack of motivation or uncertainty about goals	15
Personal or social problems	8
Financial	27
Financial aid was not sufficient	9
Employment	16
Accepted a full-time job	8

*Most frequently cited reasons in each category are given.

As well as measuring the extent of the social integration of dropout students in terms of specific associations and activities, the telephone survey also sought to discover what respondents thought might be done by Penn State to help more students complete their degrees. In other words, did the dropout who lived at home, commuted to campus, did not have a job and participated in few extracurricular activities express a desire for a richer college experience? When asked, "Were there problems caused by the University which you felt resulted in your withdrawal?" and "Do you think there was anything Penn State could have done to encourage you to remain at the University?" more than two-thirds of the dropouts believed there was nothing Penn State could have done. The responses given by the remainder however seem to support the social integration hypothesis.

Branch campus suggestions. Branch campus students suggested that the University provide more dormitories--only eight of the 19 branches presently have residence halls, where 16 percent of the branch campus students are housed. Many students viewed the "commuter campus" atmosphere as detrimental. As one student explained, "All students living at home make a branch campus seem like high school; local students bunch together, outsiders don't fit and nothing is done to allow students to mix." Since the construction of more residence halls in times of fiscal constraint is highly unlikely, perhaps increased support for extracurricular activities, another popular suggestion, is a more feasible alternative.

Although many branch students clearly disliked commuting, at the same time a significant number of those offering suggestions (19 percent) preferred to attend school close to home and showed little interest in transferring to the main campus at the end of their sophomore year. This group expressed a desire to see the branches become four-year campuses, or, more realistically, voiced a preference for transferring to a four-year college close to home.

Branch campus dropouts would like to see more "technical" or "trade school" types of programs offered, such as commercial art, broadcasting, theatre, paramedicine, paralegal training, and dental hygiene. It was also suggested that more courses be scheduled in the evenings. Finally, there was an obvious desire for improved tutorial services (a suggestion made by ten percent of the branch campus dropouts).

Main campus suggestions. Suggestions made by University Park dropouts ran the gamut from "don't offer admission to so many freshmen if you can't house them" to "permit enrollment in two colleges simultaneously." If there was a common theme running throughout it was the need for more personalized, individualized attention. Dropouts from the main campus emphasized a desire for more contact with faculty, less emphasis on faculty research and more insistence on quality teaching. For example, they suggested the university eliminate foreign instructors with English language difficulties and graduate students who exhibit little interest in teaching.

This group proposed better advising and counseling services for transfers, and less adherence to rules and procedures that seem unjustifiable (language requirements), imcomprehensible (loan renewal procedures), or poorly articulated (how frequently a course is scheduled).

Discussion

The retention literature suggests that students integrated into the academic and social structure of a college are likely to persist. If this hypothesis is valid, attrition research ought to focus on the types and degrees of involvement that distinguish dropouts from persistors. A preliminary look at the results of the telephone survey failed to support the integration hypothesis in some areas and reinforced it in several others. The need for a comparable survey of persistors is evident.

Contraditions. A rather significant proportion of the attrition sample, 23 percent, had participated in a college sports program--one apparent form of social integration. Eighty-five percent of these rated their involvement as average or greater. Over half of the dropouts had received some form of counseling--an indicator of interaction with the institutional environment--and rated its helpfulness as better than average. Ratings of academic quality (e.g., quality of instruction, faculty advisor and major), often cited as measures of academic integration, were also above average. Uncertainty about career goals and frequent changing of majors are possible indications that a student is poorly integrated into the institutional environment. Yet 72 percent of the sample said they had never changed majors and 85 percent had intended to complete a degree at Penn State. Finally, does the fact that two-thirds of the sample believed their problems were not caused by the University and thus could not make any recommendations indicate a lack of environmental influences or simply students' inability to recognize and communicate those influences?

Supporting evidence. Residential and financial data were more supportive of the social integration hypothesis. The residence experience is often cited as the single most important "bonding experience" that will insure a student's persistence in an institution. Only 15 percent of the surveyed attrition population had lived in a residence hall for one year or longer. Astin[3] has found that living at home has a negative impact on persistence when compared with living in a dorm. Sixty-two percent of the attrition sample resided at home for at least one term, 73 percent of these for one year or longer. Another of Astin's findings indicates that participation in a work-study program at any time during the undergraduate years is associated with large reductions in dropout rates. In fact, having any kind of campus job strongly increases the student's chances of persisting. Only three percent of the surveyed dropouts had been employed on campus.

Conclusion

The information obtained thus far is inconclusive without comparable data for persistors, especially in light of the contradictions in results discussed above. The next phase of the study, to be conducted this winter, will involve a telephone survey of a sample of students who were enrolled in 1977 and either graduated or persisted in 1978. In order for a student to remain in college, does he or she need to feel a responsibility to a group, an organization, or a job? Does the student need to be aware of the personal interest and concern of a faculty member? In short, will the persisting student be better integrated into the social systems of the University? In conjunction with analyzing the questionnaire data from the two samples, a comparative analysis of the demographic and academic records of the two groups will be undertaken. It should provide insight into the factors that cause some individuals to drop out from Penn State and others to persist.

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[3] Astin, op. cit.

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Recruiting efforts are only one side of the student marketing coin. A comprehensive marketing strategy includes a well thought-out student retention program. The commitment to pursue a higher education must be renewed at three-to-four month intervals. Unless an effort is made by an institution to influence and motivate the student to make that renewal, its marketing program is perfunctory at best.

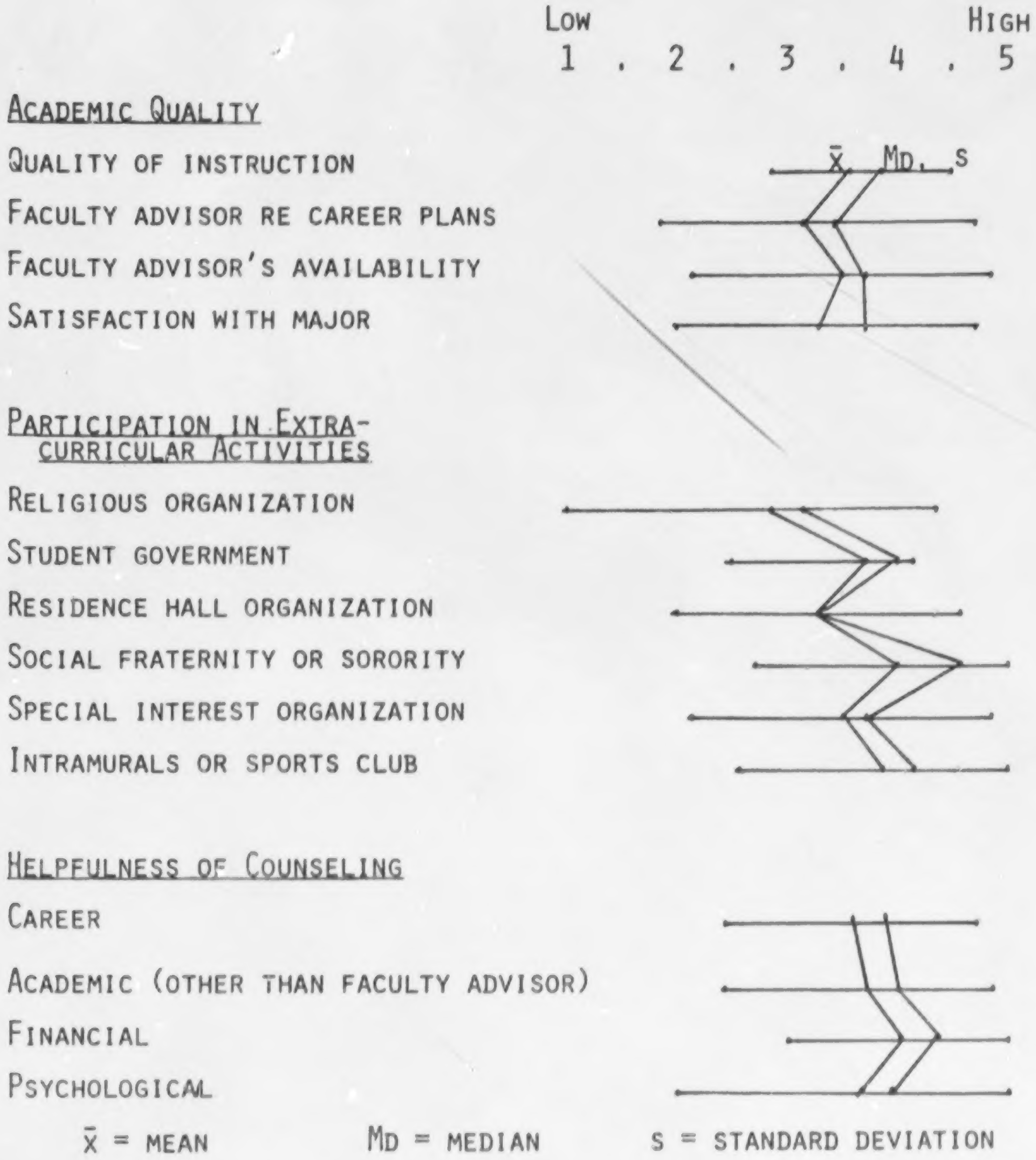

FIGURE 1. TELEPHONE SURVEY OF ATTRITION POPULATION: RATINGS OF ACADEMIC, EXTRACURRICULAR ACTIVITIES AND COUNSELING SERVICES

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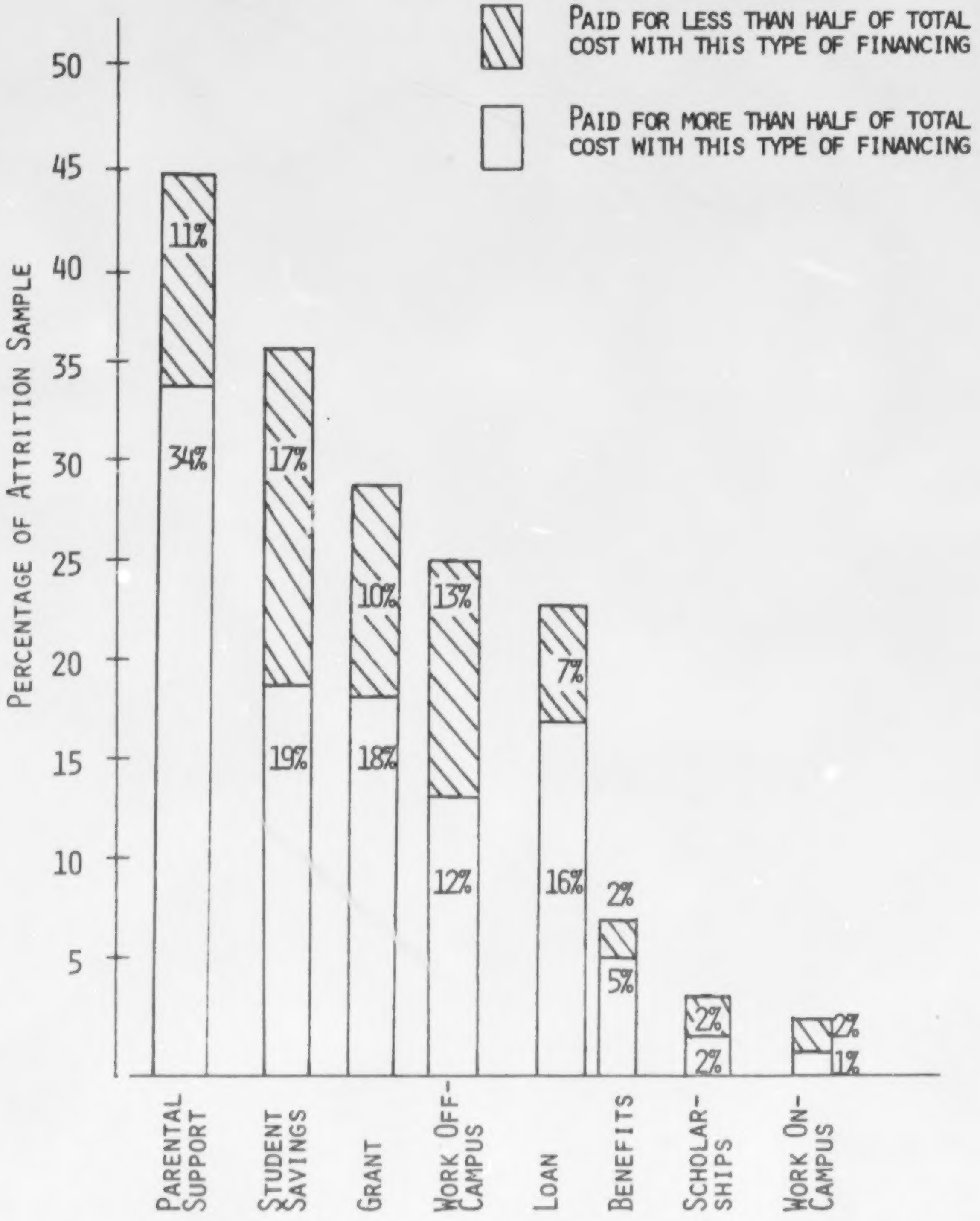

FIGURE 2. LAST TERM FINANCING OF SURVEY ATTRITION POPULATION

IDENTIFYING THE POTENTIAL DROPOUT

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BACKGROUND

The State University College at Plattsburgh is one of the ten Senior Colleges of Arts and Science in the State University of New York. The enrollment of 5500 FTE students is drawn primarily from the surrounding area, as well as Central New York, the New York Metropolitan Region, and Long Island. PSUC offers a broad range of courses in the arts and sciences, as well as career-oriented programs at the baccalaureate level.

As part of a continuing research project involved in the process of institutional self-assessment and policy analysis, a number of survey instruments have been in use over the past five years. A Senior Evaluation Survey was first administered on the campus in 1973. The following year, a corresponding New Student Evaluation Survey was designed. In 1975, the Student Biographical Inventory (SBI) was administered to a random sample of entering freshmen.

The New Student Evaluation Survey contains questions patterned after the NCHEMS-derived Senior Evaluation Survey. There are three groups of questions asking about the students' expectations in five global areas of growth: intellectual, social, personal, educational, and vocational/professional. The three sections deal with the contribution to growth of the total college experience, courses in the major field and courses outside the major.

The SBI, on the other hand, was designed to gather the students' self-ratings on various traits (e.g., impulsiveness, originality, sensitivity, etc.)

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and abilities (e.g., artistic, mathematical, writing, etc.), the importance of college goals and objectives (e.g., to discover vocational interests, to prepare for marriage and eventual family life, etc.), areas of development (e.g., literary acquaintance and appreciation, social and economic status, awareness of different philosophies, cultures and ways of life, etc.) as well as demographic and other background information. In all, there were 118 questions to be answered or items to be rated.

The nationwide advent of fiscal constraints, budget cuts, pressure for reallocation of resources and predicted declining enrollments shifted the emphasis from the general study of educational outcomes to the need to answer some vital institutional policy questions. One of the questions being asked was "How should the college respond to student attrition?" In an attempt to better understand the type of student who withdraws from college vis à vis those who persist, the decision was made to turn to the instruments already in use as a means of identifying the self-rated characteristics of the dropouts and dismissals.

DESCRIPTION OF THE STUDY

The annual quantitative studies of attrition by class, by program, by admit type, etc., demonstrated that the largest rate of loss was during the freshman year. For example, 179 (22%) of the new freshmen in Fall 1976 were no longer enrolled in the following year. Forty-two of that group had been academically dismissed, while the remainder were on leaves of absence, had transferred, or had voluntarily withdrawn. Very little data had been collected from those students who had formally withdrawn, with the exception of a rough categorization of the reason for their leaving. It seemed logical then to use the biographical and expectation data gathered from these students when they entered in anticipation of at least characterizing the type of student who was no longer enrolled.

The SBI had been mailed to a random sample of 610 freshmen in the Spring of 1976. These students had all entered as freshmen in the Fall of 1975. There were 289 usable questionnaires returned, representing 28% of the total first-time freshmen. Of this group, 41 withdrew during the freshman year. Six of the sample were academically dismissed, and 35 were voluntary withdrawals. This sample, though representative, was disappointingly small. A preliminary study of the total withdrawal population compared with the persistors was carried out. The results of that study showed only three SBI items that were responded to in a significantly ($p < .05$) different way by the two groups. There were no significant differences in the responses of the two groups to the expectation questions. It appeared that the withdrawals were "more sensitive to criticism by peers" and rated as more important the objective "to prepare for marriage and eventual family life." They were also less dependent on savings as a source of financing. However, these results were based on the combined group of 41 students, including the academic dismissals, and interpretation was difficult.

It was obvious that more data would be required in order to increase the reliability of the results. Consequently, some decisions were made.

The first decision was to look at data from the freshman classes of three different years, in the hope of replicating the results. In 1976, an attempt was made to gather the questionnaires from all students during the summer orientation sessions preceding the fall semester. The logistics had not been properly worked out, and as a result, only 478 SBI instruments and 466 Student Evaluation Surveys were collected. Out of a total class of 812 new freshmen, this was not a very satisfactory return. If the sample had been randomly selected, this would not have been serious. However, further analysis of the results for the 1976 group indicated that the sample was not representative on the basis of the percentage of withdrawals and dismissals. Because of the exploratory

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nature of the study, the decision was made to use the data cautiously.

In the Spring of 1977, the SBI and the New Student Evaluation Survey were combined. Some of the items were deleted and some were revised. The Freshman Questionnaire, as the new instrument was called, was administered to 862 new freshmen. An 83 percent sample was considered sufficiently large to ensure the randomness of the group responding. With three years of freshman data, more stable results could be anticipated.

The second decision was to combine freshman data from the two years for which both freshman and sophomore status was available. The combined group of first-year withdrawals consisted of 89 students, 41 from 1975 and 48 from 1976. The group of persisters contained 655 cases.

The third decision was made in order to increase the size of the sample, but more importantly, to study the longitudinal effects, if any, of the college experience. The data from the freshman and sophomore years were combined in order to study the group of withdrawals at the end of two years. For the sample of freshmen entering in Fall 1975, there were 85 who failed to enter the junior year, and for the 1976 group, there were 130 with SBI data. If the results of the two-year study differed from those of the combined one-year analyses, it might be possible to infer some effects due to length of enrollment at the college. Earlier studies had shown that the amount of growth perceived by Plattsburgh seniors was directly related to whether they had entered as freshmen or as transfers. Additionally, Tinto (1975) urged the use of the longitudinal approach in studies of dropouts. In preparation for a more extensive investigation, the last direction was expected to be the most rewarding.

RESULTS AND DISCUSSION

The data was analyzed using a two-tailed t-test.

Freshman Withdrawals for 1975, 1976, and 1977

Comparison of the responses of the total group of withdrawals at the end of the freshman year with those of the persistors identified only a small number of items responded to in a significantly ($p < .05$) different way. There was no replication across the three years 1975, 1976, and 1977. For this reason and because previous studies (for example, Vaughn, 1968), have urged the separate treatment of voluntary withdrawals and academic dismissals, the use of the group consisting of all withdrawals was abandoned.

The analysis of the voluntary withdrawals produced only one item that was significant in more than one of the three years. That item was the personal goal--to prepare for marriage and eventual family life, which was rated higher by the voluntary withdrawals in both 1975 and 1977 (Table 1).

Table 1. Voluntary Withdrawals vs. Persistors at End of Freshman Year

	1975			1977		
	Withdrawals	Persistors	N	Withdrawals	Persistors	N
Personal Goals	1 = not important	←——→			3 = very important	
To prepare for marriage and eventual family life	2.06	1.73	32/230	2.10	1.90	58/677

No attempt was made to partial out the sex variable, and, therefore, the question of this item's sex dependency cannot be answered for the analysis. Further studies will be directed toward the identification of other variables whose effects must be examined more carefully.

The lack of any other replications across years is consistent with the findings of Vaughan (1968), who maintains that on measures of personality, other than sensitivity, suspiciousness, and egotism, the voluntary withdrawals tend to be more like the persistors.

The number of academic dismissals in each of the samples from the 1975 and 1976 groups was too small to warrant individual analyses. In 1977, however, there were 52 academic dismissals for whom SBI data was available. There were twelve items on which the academic dismissals differed from the persistors. All but one of these items are unique to the group of academic dismissals as opposed to the voluntary withdrawals (Table 2). These students perceive themselves as having less academic ability, and, more specifically, less reading ability, than the persistors. This is consistent with the lower ratings on the various academic indicators for the entire group of academic dismissals. This also repeats the findings of Vaughan (1968), who showed that academic dismissals are more limited in cognitive ability than the persisting students. Four of the items relate to the use of leisure time in discussing topics in the arts and humanities. Two items indicate lower ratings in personal and interpersonal development. Finally, the academic dismissals rate the attainment of "specific skills that will be useful on the job" as a more important objective of their college education than do the persistors, yet they have lower expectations for vocational/professional growth from courses in their major.

Had the analysis been restricted to the total group of withdrawals, eight of the twelve items peculiar to the academic dismissals would have been obscured. In addition, looking at the academic indicators (Regents Scholarship Exam (RSE) and SAT) for the total group of withdrawals distorts both the significantly lower academic profile of the dismissals and also the similarity of the voluntary withdrawals and persistors.

Freshman Withdrawals - 1975 and 1976 Combined

The merged group of 1975 and 1976 freshmen resulted in the anticipated larger number of cases, 66 voluntary withdrawals with SBI data and 23 academic dismissals. The comparison of voluntary withdrawals and persistors produced only four SBI items that were significantly different, all higher for the withdrawals, and two academic indicators, high school average and cumulative grade-point average (GPA), both lower for the withdrawals. As in the case of the

Table 2. Academic Dismissals vs. Persistors at the End of the Freshman Year.
Items significant at the .05 level.

	Fall 1977		
	Academic Dismissals	Persistors	N
General Characteristics			
Regent Scholarship Exams	129.5	143.7	62/730
SAT - Verbal	40.2	44.9	31/349
SAT - Mathematics	46.8	50.1	30/352
CUMGPA	1.08	2.61	74/896
Academic Dismissals Rated Themselves LOWER Than Persistors on the Following:			
Expectations 1 = no expectations ←→ 5 = very high expectations			
Vocational/Professional Growth	3.94	4.19	51/728
Leisure Time 1 = never ←→ 4 = often			
Discussed Art or Music	2.78	3.10	50/739
Discussed Philosophy or Religion	2.33	2.63	51/737
Discussed Plays, Novels, or Poetry	2.47	2.81	51/737
Discussed a Movie	3.31	3.57	51/738
Traits 1 = lowest 10% ←→ 5 = highest 10%			
Compare Yourself to the Average Person of Your Age:			
Academic Ability	3.35	3.53	52/742
Leadership Ability	3.04	3.33	52/739
Reading Ability	3.27	3.50	52/738
Areas of Development 1 = lowest 10% ←→ 5 = highest 10%			
Compare Yourself With the Average Person of Your Age:			
Personal Development: Understanding One's Abilities and Limitations	3.33	3.51	51/737
Development of Long-term Friendships and Loyalties	3.59	3.83	51/736
Academic Dismissals Rated Themselves HIGHER Than Did Persistors on the Following:			
Personal Goals 1 = not important ←→ 3 = very important			
To Attain Specific Skills That Will be Useful on a Job	2.94	2.80	51/732
Sources of Financing 1 = major ←→ 3 = not a source			
Grants	2.11	2.45	44/632

1975 and 1977 data, the goal of "preparing for marriage and eventual family life" was more important to the dropouts than to the persistors.

When comparing the academic dismissals to persistors in the first year, again there are many more significant differences than when comparing the voluntary withdrawals and persistors. This is true despite the smaller number of students in this category. In addition to the expected differences in academic ability and success measures, such as RSE and GPA, academic dismissals rated themselves lower on several items that one would assume to be predictive of academic problems. These include lower ratings of their own academic ability and personal organization, as well as lower expectations for intellectual and educational growth. Their lower expectations in these areas and that of vocational/professional growth may reflect either their realistic appraisal of their abilities or their lack of a strong goal commitment to the college or both. Other evidence for their lack of commitment is the greater tendency of academic dismissals to not declare a major. In light of this fact, it is not surprising that their expectations for growth from courses in their major are relatively low. In addition, the academic dismissals were more likely to be males, although the sex difference was not significant in the 1977 class. Astin (1975) also found that men were more likely to be put on academic probation than women. Pantages and Creedon (1978), however, report some contradictory findings and conclude that the link between sex and attrition is dependent on a number of different factors.

Those differences that replicated the results of the 1977 class of first-year dismissals were in the academic ability measures, both exam scores and self-ratings, in ratings in the area of personal organization or development, and in expectations for vocational/professional growth. Additionally, both groups (the 1977 class and the combined 1975 and 1976 classes) seem to be more dependent on grants as a source of financing than are the persistors. This may, however, be due to the type of student who enrolls in a state-supported institution.

The academic dismissals rated themselves as less "sensitive to criticism by peers" than did the persistors. This result suggests that those students who are dismissed for academic reasons lack a well-developed feedback system about their own behavior, which results in their being asked to leave rather than their leaving the college voluntarily. Lower ratings by the dismissals in the Class of 1977 in "personal development: understanding one's abilities and limitations" lends further support for this interpretation. These personality traits, along with their relatively low "appreciation of religion," could also be indicative of a type such as that described by Astin (1975) who found college persistence to be "relatively low, . . ., among students who are autonomous, independent, non-conforming . . . ."

Sophomore Withdrawals - 1975 and 1976 Combined

The third decision, to look at the characteristics at the end of the sophomore year, produced the most provocative data. The larger sample revealed five SBI items rated lower by the voluntary withdrawals and eight with higher ratings (Table 3). In addition, two freshman expectation ratings were lower for the withdrawn group. Only two of the four items, which were different at the end of the freshman year, appeared in the analysis at the end of the second year. The other two, namely, "sensitivity to criticism by . . . peers," and "experience and skill in relating to other people," while rated higher by the first year voluntary withdrawals, were not present in the second year analysis. One could infer that the most sensitive and social student may withdraw early in the college experience, that is in the first year. Again, this is consistent with Vaughan's (1968) description of the voluntary withdrawal as being oversensitive. Those students withdrawing in the second year may be sufficiently different on certain characteristics such as sensitivity, so that combining

Table 3. Voluntary Withdrawals vs. Persistors at End of Sophomore Year. Items significant at the .05 level.

	Merged 1975 and 1976 Groups		
General Characteristics	Voluntary Withdrawals (mean)	Persistors (mean)	N
*High School Average	83.9	85.1	474/1215
*Cumulative Grade-Point Average -			
1st Year	2.42	2.69	453/1244
2nd Year	2.50	2.82	290/1237
Voluntary Withdrawals Rated Themselves LOWER Than Persistors on the Following:			
Expectations 1 = no expectations ⟷ 5 = very high expectations			
Vocational/Professional Growth-overall college experience	3.94	4.07	286/805
Vocational/Professional Growth-courses in major	4.07	4.19	270/777
SBI Items			
How Hard Did You Study in High School? 1 = very little ⟷ 4 = very hard	1.89	2.05	178/536
Sources of Financing 1 = major ⟷ 3 = not a source			
Employer Support	2.99	2.94	137/437
How Do Your Friends Feel About Your Enroiling at PSUC? 1 = strongly encouraging ⟷ 5 = strongly discouraging	1.93	1.77	152/486
Personal Goals 1 = not important ⟷ 3 = very important			
To Discover my Vocational Interests and Prepare for a Career	2.73	2.83	177/520
To Attain Specific Skills That Will be Useful on a Job	2.69	2.78	176/522
Voluntary Withdrawals Rated Themselves HIGHER Than Persistors on the Following:			
Leisure-time Activities 1 = never ⟷ 4 = often			
Read Articles in Intellectually-oriented Magazines or Journals	2.15	2.00	179/525
Read a Book on Social Science	2.44	2.16	177/525
*Read a Book in Arts and Humanities	2.51	2.31	178/524
Discussed a Scientific Theory or Event	2.19	1.95	177/524
Visited an Art Exhibit	2.49	2.30	178/522
Attempted to Fix a Complicated Piece of Machinery	2.15	1.98	169/510
Traits 1 = lowest 10% ⟷ 5 = highest 10%			
Impulsiveness	3.39	3.24	175/523
Personal Goals 1 = not important ⟷ 3 = very important			
*To Prepare for Marriage and Eventual Family Life	1.92	1.76	164/479

* Also significant at the end of the freshman year.

the two groups may obscure the difference, as was demonstrated for the academic dismissals. Further research will deal with direct comparisons between the first and second year withdrawals.

The items that were present in the sophomore analysis and not in the first-year study include vocational/professional goals and expectations rated lower by the voluntary withdrawals. These findings reflect the level of goal commitment mentioned by Astin (1975) and summarized by Tinto (1975). The absence of this difference at the end of the first year may also be attributable to the effect of extended enrollment. For example, the student may not have intended to remain longer than two years. Perhaps the planned study of those withdrawals who subsequently transfer to another institution will shed some light on this question. Among the other items not present in the first year were "impulsiveness," "encouragement of friends," and the leisure-time activities, "reading articles in intellectually oriented magazines" and "attempting to fix a complicated piece of machinery," all rated higher by the withdrawals.

The comparison of persisting students with those academically dismissed by the end of their sophomore year yielded some additional significant differences (Table 4). Most of these one would expect on the basis of intuition and past research. As compared to persistors, fewer of the mothers of academic dismissals had reached an educational level of "some college." Academic dismissals tended to study less in high school and were less influenced by their own academic interests in their choice of a major.

In the personal trait or ability area, "drive to succeed" and "leadership ability" are added to the constellation of traits on which the academic dismissal rated himself or herself lower than did persistors. This difference in leadership ability was seen in the first year dismissals of the Class of 1977, but not in the combined 1975-1976 group.

In addition to the lower expectations in the educational and vocational/

Table 4. Academic Dismissals vs. Persistors at End of Sophomore Year. Items significant at the .05 level.

	Merged 1975 and 1976 Classes		
General Characteristics	Academic Dismissals (mean)	Persistors (mean)	N
*Sex 1 = male; 2 = female	1.34	1.68	103/1228
*High School Average	80.5	85.1	94/1215
*Regents Scholarship	111.5	135.1	101/1215
*Cumulative Grade-Point Average - 1st Year	1.24	2.69	94/1244
2nd Year	1.56	2.82	46/1237
Academic Dismissals Rated Themselves LOWER Than Persistors on the Following:			
Expectations 1 = no expectations ⟷ 5 = very high expectations			
*Educational Growth-Courses in Major	4.02	4.25	44/774
*Vocational/Professional Growth-Courses in Major	3.84	4.19	44/777
Personal Growth-Courses Outside the Major	3.25	3.52	44/773
SBI Items			
Parents' Education 1 = grammar school; 3 = finished high school; 4 = some college; 8 = graduate degree			
Mother's Education	3.56	4.23	32/536
How Hard Did You Study in High School? 1 = very little ⟷ 4 = very hard	1.78	2.04	32/536
Sources of Financing 1 = major ⟷ 3 = not a source			
Parental Aid	1.81	1.54	31/509
What Are Some of the Factors That Influenced Your Present Choice of Major? 1=no influence ⟷ 3=major influence			
My Own Academic Interests	2.63	2.80	30/497
Traits 1 = lowest 10% ⟷ 5 = highest 10%			
Compare Yourself to the Average Person Your Age:			
*Academic Ability	3.16	3.60	31/523
Drive to Succeed	3.35	3.66	31/521
Leadership Ability	2.94	3.29	31/522
*Personal Organization	2.94	3.46	31/523
*Sensitivity to Criticism by Peers	2.90	3.20	30/521
Areas of Development 1 = lowest 10% ⟷ 5 = highest 10%			
*Appreciation of Religion	2.84	3.30	32/505
Sources of Financing 1 = major ⟷ 3 = not a source			
*Grants	2.00	2.32	29/460
Leisure-time Activities 1 = never ⟷ 4 = often			
*Read a Mystery, Spy Novel, or Similar Kind of "Escape" Book	3.06	2.53	32/524
*Discussed a Scientific Theory or Event	2.28	1.95	32/524
Attended a Scientific Lecture	1.94	1.62	32/527
*Attempted to Fix a Complicated Piece of Machinery	2.69	1.98	32/510

*Also significant at the end of the freshman year.

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professional growth areas seen in the first-year dismissals, students dismissed by the end of the sophomore year had lower expectations for personal growth, resulting from courses outside their major, which lends further support for Astin's findings (1975) that students who drop out generally have lower educational aspirations.

The profile of the typical academic dismissal suggested by these data is a student who has lower academic aptitude and achievement scores, lower aspirations and achievement motivation, who has not decided on a major, and who has other personality traits that limit his ability to organize himself or herself around a goal.

SUMMARY

The search for a better understanding of the type of student who leaves college revealed some characteristics that are descriptive of non-persistors. These were derived from questionnaire and quantitative data collected at the time of entrance into the freshman year. The nature of the college population at a four-year state-supported college may prevent the generalization to all college students.

The more important conclusions from the study include:

1. The importance of separating the academic dismissals from the voluntary withdrawals, as recommended by Vaughan (1968) and reiterated by Tinso (1975), is substantiated. Results for the two groups are quite different.
2. The similarity of the voluntary withdrawals and the persistors on various personality variables is replicated. However, the withdrawals appear to be more sensitive and impulsive. On academic indicators the voluntary withdrawals have generally lower, though not always significantly different, scores.

They are more likely to have viewed college as a means of preparing for marriage, and have generally lower vocational goals for their college education.

3. The *academic dismissals* have lower cognitive ability and achievement scores than the persistors. They also *have certain personality traits and background characteristics, which predispose them to academic dismissal*. Among these are:

    Lower level of mother's education
    Poor study habits
    Less personal organization
    Less sensitivity to criticism by peers
    Less awareness of their abilities and limitations
    Lower aspirations and achievement motivation

The questions on the Student Biographical Inventory relating to the leisure-time activities were designed to measure change, not to identify the potential dropout, and do not seem intuitively relevant to this problem. In fact, neither of the instruments used in this study were originally intended for this purpose. However, the items pertaining to goals, expectations and personality traits seem to be directly related to some of the factors that determine the students' persistence. Although these self-perceptions are useful in categorizing the academic dismissal, the present study has not demonstrated that they add significantly to the information supplied by the quantitative ability measures. The planned regression analyses may help to determine the extent to which they are helpful. The ultimate questions is, what are the practical ways of treating predictive ability?

The results of this preliminary research indicate the need for more work in three areas. Data should be gathered from the departing students, a more rigorous statistical methodology must be employed, and institutional characteristics must be examined. The work of Astin (1975) and Feldman and Newcomb (1970), among others, indicates that institutional characteristics play an important role in determining student persistence. Future research will be directed toward understanding the environmental variables that contribute to the goodness of fit between the student and the college.

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A MOSAIC OF COLLEGE STUDENT PERCEPTIONS: IMPLICATIONS FOR RETENTION

A panel of members of the research staff of Student Testing and Research, Division of Student Affairs at State University of New York at Buffalo (SUNY/B) presented highlights of research conducted by that Office during the last fifteen years.

The highlights were drawn from the following papers - which in turn are based on reports published or being written for publication by Student Testing and Research.

THE SUNY RETENTION IMPROVEMENT COMMITTEE MAJOR FINDINGS

Allen H. Kuntz
SUNY at Buffalo

State University of New York approximated a student body size of 340,000 with almost 16,000 faculty in 1977. Excluding community colleges, there were in 1977 187,451 students - 141,372 full time, 46,079 part time, 153,213 undergraduates, 34,238 graduates. They were enrolled in statutory colleges (Cornell), specialized colleges (Maritime), agricultural and technical schools, health science centers, colleges, and University centers.

In July 1977, James Perdue reported to the Chancellor by memorandum the extent of the attrition phenomenon within SUNY. A task force of students, faculty, administrators, and central staff was appointed and began working in January 1978.

The recommendations of the task force are in two major categories, those directed at possible actions of central staff and those for unit institutional staff. Two basic types of recommendations emerged: the systematic examination of institutional mission and interaction of students, staff and faculty in carrying out that mission. Institutional attractiveness and student affiliation mechanisms constitute the major portion of these recommendations. In effect, a better initial student match with the institution may result in a greater development of affiliation. A second group of suggestions addresses institutional processes in response to student needs. The procedures of the institution - admission, registration, class scheduling, grade reporting, financial aid, advisement - can be significantly enhanced to improve vectors of student affiliation.

While some voluntary withdrawal of students is inevitable, indeed in some cases desirable, a significant reduction of the student out-migration rate seems possible. By bringing about a better initial match of students with

institutions within SUNY and by increasing affiliation of students after admission, the retention rates will increase.

A copy of the report can be obtained by writing to Phyllis Bader, Assistant to the Vice Chancellor, Educational Services, Room S527, State University Plaza, Albany, New York 12246.

A FOUR-YEAR FOLLOW-UP: 1973 - 1977
CHARACTERISTICS OF FRESHMEN ASSOCIATED WITH RETENTION[1]

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SUNY at Buffalo

An investigation of the freshmen class of 1973 was conducted to determine the relationships between extensive information provided by incoming freshmen and whether these students had persisted, stopped out, or dropped out after four years. Nearly all of the students (1,666 of 1,949 students, 85 percent) who first entered the State University of New York at Buffalo (SUNY/B) as full-time, regular admissions freshmen in the fall of 1973, completed the 305 item College Student Perception Survey the summer before entering the University. Questionnaire items dealt with a wide range of topics including educational experiences and expectations, majors and careers, interpersonal relationships, family, and self-assessments and expectations. High school information was obtained regarding class size, average, and class standing. New York Regents Scholarship Examination Scores were also provided.

Four years later, in July of 1977, 976 students, 59 percent of the sample, were persisters who had attended continuously, enrolling for three or more credit hours each of the eight semesters. Five hundred and ninety-nine students, 36 percent, had left the University, either dropping out or transferring to another institution. No differentiation was possible since SUNY/B does not have a method for determining which of the students who do not return transfer to another educational instituton and which no longer attend any college or university. The remaining 91 students, five percent, were stopouts. They had stopped taking courses (or had taken two credit hours or less) for at least a semester, then returned to the University on a more full-time basis.

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[1] The complete report upon which this paper is based is available upon request from Student Testing and Research, 316 Harriman Library, SUNY at Buffalo, Buffalo, New York 14214

Responses to 305 multiple-choice items, to 63 free-response questions, and to 31 items from Admissions and Records files were examined for differences in responses, at the .05 level of confidence, among dropouts, stopouts and persisters. Analysis of variance and chi square analysis were employed to investigate the significance of the differences.

High School Experiences and College Expectations

As entering freshmen, the students were asked about their high school experiences and college degree expectations to determine some of the differences among their educational experiences and expectations before entering SUNY/B.

Admissions and records data revealed that dropouts and stopouts had only slightly lower high school averages and ranked only slightly lower in their high school classes than did persisters. While these differences were significant, they were not substantial. Responses to survey items indicated that dropouts and stopouts were less satisfied with their high school academic experience and with the degree of effort that they had invested in their academic work in high school. Dropouts and stopouts however, indicated that more of their high school classmates displayed a good sense of humor.

Compared to persisters and dropouts, stopouts tended to come from high schools where slightly smaller proportions of their classmates went on to college. These students also perceived that more of their teachers were interested in them as individuals and more of their classmates respected them. Stopouts, however, were the least satisfied of the three groups with their high school academic experience and the degree of effort they had invested in their academic work.

While all three groups generally had positive attitudes about attending college, dropouts and stopouts were slightly less enthusiastic about attending and stated that they would be less crushed and disappointed if they could not go. Stopouts were less enthusiastic than even the dropouts about going to college.

As entering freshmen, students were asked about their degree expectations. Proportionately more persisters than dropouts and stopouts planned to complete a baccalaureate at SUNY/B. Interestingly, dropouts, stopouts, and persisters did not differ in their expectations of attaining a post-baccalaureate degree at this University or elsewhere.

Major Choice

Students also indicated their major field choices upon entering the University. Dropouts and persisters were quite similar in their choice of majors as freshmen, and they differed from stopouts in several areas. More stopouts than persisters or dropouts initially selected Arts and Letters majors of architecture and environmental design, English, and French. More also selected political science, biochemistry, and mathematical-economics. More persisters and dropouts, however, selected majors of biology and management and Health Sciences majors of nursing, occupational therapy, physical therapy, and pharmacy.

Dropouts and persisters differed in their selection of several majors. More persisters chose electrical engineering and biology as majors, while more dropouts chose medical technology.

Stopouts were the most undecided about a major field choice.

Career

Dropouts and persisters were also similar in their choice of careers as freshmen, and they differed from stopouts in several areas. More dropouts and persisters selected careers in the health-related professions as nurses, pharmacists/pharmacologists, and physical therapists. Fewer selected careers as architects, biological scientists, language interpreters/translators/

linguists, and writers. Dropouts and persisters did differ in one career selection. More persisters than dropouts or stopouts chose careers in engineering.

Stopouts were the most undecided about a career choice, while dropouts were the most decided. It is possible that some of the dropouts who were decided upon a career were not admitted to the corresponding department, so they transferred to a college where they could pursue the major of their choice.

Freshmen were also asked to compare the importance of their career role with other roles that they might have. Dropouts and persisters indicated that their career roles would be more important compared to other roles than was indicated by the stopouts.

Career Characteristics

As freshmen, these students indicated the desirability of various aspects of a career. Dropouts and stopouts were less concerned with the trappings of their career and more concerned with opportunities to be creative than were the persisters. Persisters specified that friendly associates, opportunity for social interactions, prestige, and large incomes were desirable to them to a greater extent than was indicated by the stopouts and dropouts. Dropouts and stopouts, however, were decidedly more desirous than the persisters for the opportunity to be creative. Travel (as part of the job) was much more desirable to the stopouts than to the dropouts, and considerably less desirable to persisters.

Interpersonal Relationships

Dropouts, stopouts, and persisters differed in their perceptions of various aspects of their interpersonal relationships before they entered the

University. As incoming freshmen they differed in their frequency of association with several different groups of people. Dropouts were more likely than persisters and stopouts to associate with peers of the other sex (outside of school or class) and with small children. Dropouts and stopouts were more likely than persisters to associate with people of a different socio-economic status, while stopouts associated with people of a different race more than did dropouts and persisters.

The students, as incoming freshmen, indicated how well they understood the values and behavior of various different groups of people. They also specified how comfortable they were in associating with people in each group. Dropouts indicated that they understood the values and behavior of peers of the other sex to a greater extent than did stopouts and persisters. Stopouts, however, understood the values and behavior of people of a different religion to a greater extent than did dropouts and persisters. Interestingly, dropouts not only reported that they understood the values and behavior of peers of the other sex better than did the stopouts and persisters, they also reported being more comfortable in associating with these peers than did the others.

As freshmen, these students indicated with whom they felt free to discuss their most personal feeling and with whom they consulted when they had an important decision to make. Dropouts indicated more frequently than did persisters and stopouts that (a) they felt free to discuss their most personal feelings with peers of the other sex and (b) they consulted with peers of the other sex when they had an important decision to make.

Persisters and stopouts seemed to relate better with some adults than did the dropouts. More persisters than dropouts or stopouts reported that they felt free to discuss their most personal feelings with the parent of the same sex, while more stopouts than others discussed their most personal feelings with one or more adults of the other sex who were not a parent.

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Activities

Dropouts, stopouts, and persisters also differed in the degree to which they enjoyed doing or viewing various activities. Persisters enjoyed sports, either doing, viewing, or both, to a greater degree than did dropouts and stopouts. Stopouts enjoyed cultural activities (music, art, and poetry) to a greater degree than did dropouts, while persisters enjoyed these cultural endeavors least of all. Dropouts and stopouts enjoyed being by themselves more than did persisters.

Personal Characteristics

Dropouts, stopouts and persisters described themselves differently on several personal characteristics. Persisters described themselves as being more dependable, self-disciplined, and competitive than either of the other groups. They also depicted themselves as being the least independent in thought and the least creative. Stopouts characterized themselves as the most independent in thought and the most creative, while being least dependable, self-disciplined, and competitive. Dropouts indicated that they were the most moody, insightful, and independent in action.

Freshmen also rated their abilities in various areas. Both dropouts and persisters rated their abilities to make decisions and to cope with finances, sexual desire, and conflicts higher than did the stopouts. Stopouts, however, rated their ability to cope with loneliness higher than did dropouts and persisters.

Summary

Persisters were more satisfied with their academic experience and efforts than were the dropouts and stopouts. They were also more enthusiastic about attending college and were more definite about attaining their baccalaureate at SUNY/B. As incoming freshmen, persisters described themselves as more dependable, self-disciplined and competitive. These students also enjoyed participating and/or observing sports to a greater extent than did dropouts and stopouts.

Persisters seemed to be less creative and have a more limited association with diverse groups than the dropouts and stopouts. They indicated that they were less independent in thought and less creative, and described themselves as creating and/or appreciating art, music, and poetry to a lesser extent than did the other two groups. Regarding career characteristics, persisters were more concerned with the trappings of a career and less concerned with the opportunities to be creative. Persisters had less exposure to people of different races and of different socio-economic backgrounds, and were less able to understand the values and behavior of peers of the other sex. They were more likely than the other two groups to discuss their most personal feelings with their parent of the same sex.

Persisters were more satisfied with their high school academic efforts and experiences and were more enthusiastic about college. They were more competitive and self-disciplined - skills vital to degree completion - and were possibly less distracted by close associations with peers of the other sex and other groups. Unfortunately, persisters also characterized themselves as less creative and independent in thought and less exposed to people of diverse backgrounds and races. It will be interesting to see how these students change during their four years at the University.

The dropouts were actually two different groups of students, both of whom had left the University within the four years after entering as freshmen. One group transferred to another educational institution while the other dropped out and did not continue their formal education. Dropouts described themselves in characteristics and associations that make their departure, whatever the destination, more plausible. They depicted themselves as more insightful and independent in action than did the other groups. They also characterized themselves as interacting more with peers of the other sex outside of school or class.

Dropouts more frequently associated with peers of the other sex, reported that they understood the values and behaviors of these peers better than did the dropouts and persisters, and reported being more comfortable in associating with these peers. Dropouts also indicated more frequently than did persisters and stopouts that they felt free to discuss their most personal feelings with peers of the other sex when they had an important decision to make.

It is quite understandable that individuals with such close associations with peers of the other sex might want to transfer to another institution to be closer to a particular individual. Likewise, these students would be more likely to leave school to get married and to start raising and supporting a family.

Stopouts are an interesting group. They were the least satisfied with their high school academic experiences and efforts, and the least enthusiastic about attending college. Their self-descriptions indicated that they rated themselves lower than did persisters and dropouts on several skills generally associated with academic success: dependability, self-discipline, and competitiveness. Their tentativeness regarding college was reflected in their relative indecision about major or career choices and was confounded by their relative inability to make decisions and to cope with finances, sexual desire, and conflicts.

In light of these academic difficulties, it is not difficult to understand why these students would leave the University. What is of interest is why they returned! Perhaps it hinges on their creativity and independence. Their responses indicated that they were the most creative and independent in thought of the three groups. They enjoyed creating and/or appreciated poetry, music, and art to a greater extent than did the others. They also rated themselves better able to cope with loneliness.

Stopouts seemed to have more support systems while in high school than did persisters and dropouts. More of the stopouts' teachers were interested in them as individuals and more of their classmates respected them. Perhaps the combination of support and an appreciation of their own worth, especially of their creativity and their independence, enabled these students to leave the University, to sort out their purpose and desires, and then to return, establishing more fulfilling relationships with the University.

CORRELATES OF RETENTION OF STUDENTS IN ADMINISTRATIVE FACULTY UNITS

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During the past twenty years, educators and researchers have become interested in the issue of retention of college students. The extent of this interest has grown recently, in response to the declining numbers of potential college-aged young adults, high attrition rates at many institutions, and the resulting keener competition among colleges to recruit and retain students. The goal for the institutional researcher, working with a college's or university's central administration is to first find environmental or developmental characteristics which correlate with university retention, develop models for the interaction of the college environment and the students, and then to test and validate these models by manipulating the environment in the hope of being able to retain a higher percentage of incoming students.

A comprehensive review of the literature (Pentages and Creedon, 1978) indicates that retention research is still at the stage of locating correlates and constructing models. Two characteristics of incoming students which have been found to be associated with retention are: goal commitment (either to a career or to a major field) and positive faculty-student interactions. The most popular and viable model constructed to date is based on the "college fit" theory, i.e., if a student finds an acceptable degree of congruence between his own personal values, goals, and attitudes and those encountered in the college environment, he will be more apt to persist than if he does not find such congruence.

The issue of retention within departments or university administrative units has not previously been addressed by researchers. Retention of students on this smaller scale is of interest to Department Chairmen and Deans of Schools or

Faculties.[1] Faculty attrition occurs via both the heretofore researched process of students leaving the University and by the previously unresearched process of students transferring to other Faculties within the University. This latter issue is the one addressed in this paper. The issue of students transferring to other Departments within the same Faculty is not addressed here.

The obvious question to ask is whether students transfer out of Faculties for the same reasons hypothesized and reported in the literature of institutional retention studies. If this is the case, the same models or adaptations of them may be used to predict attrition, to manipulate the environment on a smaller, more manageable scale, and to aid in recruiting the services of the faculty and deans who have a personal stake in "retention" within the administrative units with which they are affiliated. The results reported in this paper are an excerpt from a more comprehensive report which will be published later this year.[2]

Methodology

Sample. Seven-hundred and sixteen students were randomly selected from the population of 2072 SUNY/B students who indicated on their January, 1974 registration materials that they expected to receive a baccalaureate in May, 1974. Questionnaires were mailed to these seniors in mid-April, 1974. Two hundred and sixty-nine students returned usable questionnaires and comprise the sample upon which the results reported in this paper are based.

Questionnaire. The 1974 SENIOR SURVEY consists of 345 multiple-choice questions concerning experiences and problems students encounter during college, and students' assessment of courses, faculty,[3] university functions, plans, expectations, and life styles. One hundred and forty-six of these items in three areas were selected for analysis in this report. These areas are: (1) Personal goals - past and present; (2) Evaluations of major and non-major faculty; and (3) Seniors' perceptions of the importance University functions actually and should have. The students were asked to indicate: the importance to them of ten life goals both "during college" and at the "present time;" the degree to which their goals had been fulfilled during their college experience; and the degree of benefit they derived from courses at SUNY/B towards goal fulfillment. Importance of goals was rated along a five-option scale ranging from *no importance* to *extremely high importance.* The fulfillment scale ranged from *not at all* to *totally* fulfilled. Contribution of courses was rated along a five-point scale ranging from *no benefit* to *of the utmost benefit.*

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[1] At SUNY/B, seven undergraduate academic divisions exist. These and an eighth group consisting of students with a "Double" or "Special" major are the eight groups called "Faculties" in this report.

[2] For copies of this report, write the author c/o Student Testing and Research, 316 Harriman Library, SUNY/B, Buffalo, New York 14214.

[3] Faculty, when capitalized, refers to the seven academic divisions at SUNY/B. When uncapitalized, faculty refers to the University's teaching staff.

Twenty statements about major and non-major faculty were included. The students were asked to respond for both sets of faculty on a five-option scale ranging from *true for no faculty* to *true for all faculty.*

For the importance that seniors perceived SUNY/B functions should and actually have, a scale ranging between *of no importance* to *of extremely high importance* was used to rate twenty-three possible functions of the university.

On the SENIOR SURVEY, the students were also asked to indicate their initial and senior choices of academic majors.

Creation of variables. Initial and senior year Faculty affiliations were derived from the students' indicated initial and senior year major choices. A crosstabulation of initial and senior year Faculty affiliations was performed (Table 1). This table gives the number of persisting students in each of the seven Faculties and students retaining "Double" or "Special" majors and "Unaffiliated" statuses along the main diagonal. For example, the Faculty of Arts and Letters retained 19 of their 34 students, or 56% of those initially affiliated with this Faculty. Arts and Letters lost one student to the Health Sciences, ten to the

Figure 1

CROSSTABULATION OF THE STUDENTS' INITIAL FACULTY AFFILIATION WITH THEIR FACULTY AFFILIATION IN THEIR SENIOR YEAR

	Senior Year Faculty Affiliation										
Initial Faculty Affiliation	Arts and Letters	Education	Engineering	Health Sciences	Natural Sciences	Scoial Sciences	Management	Special/Double Major	Unaffiliated	TOTALS	Percent Retained[1]
Arts and Letters	19	0	0	1	0	10	0	3	1	34	56
Education	0	10	0	2	0	4	1	0	0	17	59
Engineering	1	0	16	1	4	4	5	3	2	36	44
Health Sciences	1	1	0	28	0	5	0	0	1	36	78
Natural Sciences	1	2	4	5	27	11	2	5	1	58	47
Social Sciences	6	2	0	2	1	31	4	6	1	53	58
Management	1	0	0	0	0	1	14	0	2	18	78
Special/Double Major	1	0	0	0	0	5	0	1	0	7	14
Unaffiliated	0	0	0	1	0	4	3	0	2	10	
TOTALS	30	15	20	40	32	75	29	18	10	269	
Percent Gained[2]	37	33	20	30	16	59	52	94			

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[1] Percent Retained is the number of students persisting in a Faculty divided by the total number of initial affiliates.

[2] Percent Gained is the number of students who entered a Faculty after a different initial affiliation divided by the total number of senior year affiliates.

Social Sciences, three took on "Double" or "Special" majors, and one initial affiliate of Arts and Letters was not affiliated with a Faculty, as of the senior year. Arts and Letters gained students from other Faculties up to a total of 30, or a gain of 37%. The percent of initial affiliates retained by each of the Faculties,[4] which was derived by dividing the number of persisters in each Faculty by the total number of initial affiliates, serves as the retention criterion for this report.

As evidenced in Table 1, certain Faculties at SUNY/B had relatively high retention rates (e.g., Health Sciences and Management, 78%) while others had relatively low retention rates (e.g., Natural Sciences and Engineering, 47% and 44% respectively.) The Faculties of Social Sciences and Management had relatively high gain rates (59% and 52% respectively) while Engineering and Natural Sciences have relatively low gain rates (20% and 16% respectively). Correlating the rated importance of personal goals, perceptions of the behaviors of SUNY/B faculty, and rated importance of SUNY/B functions with the percent retained is the statistical methodology of this report.

Two sets of variables to be used as correlates of retention of students by a Faculty were created. The first set was created by taking the average value (mean) of the responses of the persisters in each Faculty to each of the 146 SENIOR SURVEY items selected for this study. The second set was created by subtracting the mean response of the transfers out of each Faculty from the mean response of the persisters in each Faculty.

Research Design. The rationale for correlating the average response of students who persisted in each Faculty with the retention rates of each Faculty is as follows: (1) It simplifies, to some degree, a complex issue of attempting to predict "which students" to attempting to predict "how many students" and finding out "why" for the aggregate; (2) It allows the dismissal of the inter-Faculty unit differences to investigate intra-Faculty unit differences; and (3) In discovering correlates which are important for the aggregate, models and possible manipulation of Faculty division environments are suggested which might be overlooked by analyzing each individual's unique responses in each Faculty. In either design, it is never possible, using current statistical models, to infer back to the individual. Correlating the mean response is simply more convenient and results in the loss of none of the pertinent information.

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[4] "Double" and "Special" majors and those retaining "Unaffiliated" statuses were excluded from further statistical analyses. The percent retained for these two categories of students was not analyzed.

The rationale for creating the two particular sets of variables to be correlated with retention rates of each Faculty is as follows: (1) The mean responses of persisters in each Faculty indicate, to some degree, the aggregate perceptions and beliefs of continuing students in each Faculty. Differences among persisters in the seven Faculties which correlate significantly with the differential retention rates should give clues regarding what student goals, faculty-student relationships, and University functions facilitate retention of students by the Faculties. (2) The mean responses of students who have transferred out of each Faculty indicate, to some degree, the aggregate perceptions and beliefs of students who did not continue in each Faculty. Differences between persisters' and transfers' mean responses in the seven Faculties which correlate significantly with the differential retention rates should give further clues regarding what student goals, faculty-student relationships, and University functions facilitate retention and which encourage students to transfer to other Faculties.

The mean values of the persisters' and transfers' responses were calculated through the use of a Fortran program written by the author of this report. Correlations of the persisters' means, differences between persisters' and transfers' means, and the percent retained criterion were computed by the PEARSON CORR subprogram of the Statistical Package for the Social Sciences version 7.0 (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). Correlations with a probability of occuring by chance less than five times in 100 were designated to be statistically significant.

Results and Discussion. In Table 2 are lists of the significant correlates of retention in a Faculty unit, when persisters' mean ratings of goals, faculty, and functions are correlated with Faculty retention rates. Table 3 lists the significant correlates of retention in a Faculty unit when the mean difference in ratings between persisters' and transfers' out of each Faculty are correlated with Faculty retention rates.

In terms of the persisters' responses to the analyzed SENIOR SURVEY items, four of the ten goals during college and four in the senior year appear to be of greatest importance to retention. Faculties tended to retain more students whose goals during college emphasized "increased openness," "increased understanding of marriage," "increased understanding of others' feelings," and "increased ability to handle responsibility." Faculties with lower retention rates tended to recruit and retain students who had valued these four goals to a lesser degree during college. Faculties which retain a relatively high percent of initially affiliated students tended to retain students who value "increased understanding of marriage," "development of personal standards," "increased understanding of others' feelings," and "increased openness" in the senior year to a greater degree than did students who persisted in Faculties with lower retention rates (Table 2).

In terms of the differences between persisters' and transfers' responses to the analyzed SENIOR SURVEY items, the importance which SUNY/B functions should have appear to discriminate best between high- and low-retention Faculties. Persisters in lower retention Faculties tended to indicate more importance should be attributed to the functions,

Provide career preparation

Promote excellence in teaching

Foster individual responsibility

Prepare students to be leaders

TABLE 2

SIGNIFICANT CORRELATIONS BETWEEN THE MEAN RATINGS OF GOALS, FACULTY, AND FUNCTIONS BY STUDENTS PERSISTING IN EACH FACULTY AND THE PERCENT RETAINED BY EACH FACULTY (N=7)

	r
Importance of goals during college[1]	
Increased openness/skill in interpersonal relationships	.82
Increased understanding of responsibilities of marriage and family life	.76
Increased understanding of others' feelings, behavior, values	.75
Increased ability to handle responsibility	.71
Degree of fulfillment of goals during college[2]	
Increased openness/skill in interpersonal relationships	.87
Importance of goals - senior year[1]	
Increased understanding of responsibilities of marriage and family life	.86
Development and understanding of personal standards and values	.82
Increased understanding of others' feelings, behavior, values	.75
Increased openness/skill in interpersonal relationships	.74
Proportion of non-major faculty who:[3]	
Treat students impersonally	.75
Importance SUNY/B functions should have[1]	
Provide heterogeneity within the university population with respect to socio-economic status, sex, race, age, beliefs	.78
Encourage increased openness and skill in interpersonal relations	.71
Importance SUNY/B functions actually have[1]	
Examine society's current values, attitudes, and modes of living	.68

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[1] Importance of goals during college and in the senior year and the importance SUNY/B functions should and actually have were rated along a five-point scale ranging between *no importance* and *extremely high importance*.

[2] Degree of fulfillment of goals during college was rated along a five-point scale ranging between *not at all* and *totally*.

[3] Proportion of non-major faculty was judged along a five-point scale ranging between *true for no faculty* and *true for all faculty*.

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Encourage development of personal standards and values

Lead in initiating changes in society

Promote knowledge and interest in world-wide affairs

Encourage the development of critical thinking and problem-solving skills

Prepare students for graduate or professional school

than did transfers out of these lower-retention Faculties. Conversely, these functions had less importance to persisters than to transfers out of Faculties with higher retention rates (Table 3).

Interactions with non-major faculty also appear to have a significant bearing on retention. As given in Table 3, the difference between persisters' and transfers' mean ratings of the positive behaviors of faculty correlate negatively with Faculty retention rates, while the negative behaviors of faculty correlate positively. As persisters are rating faculty external to the major department which they have always affiliated with, and transfers are rating faculty external to their senior year affiliation, it becomes apparent that persisters in higher retention Faculties rate their non-major faculty as more impersonal and less caring than did students who transferred out rate the persisters' major faculty (i.e., the faculty that the transfers originally had in their major courses), and that persisters in higher retention Faculty units rate their non-major faculty as less relevant, dedicated and skillful than did transfers rate the persisters' major faculty. Conversely, in lower retention Faculty units, persisters emphasize the negative behaviors of their non-major faculty to a lesser degree than transfers emphasize these same characteristics of the persisters' major faculty, while giving better ratings to the positive behaviors of their non-major faculty than did transfers in rating the persisters' major faculty.

It is interesting to note that the personal goals discriminate best between the persisters in high- and low-retention Faculties, while institutional and academic factors discriminate best between the transfers and persisters in the

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TABLE 3

SIGNIFICANT CORRELATIONS BETWEEN THE DIFFERENCE IN MEAN RATINGS OF GOALS, FACULTY, AND FUNCTIONS BY STUDENTS PERSISTING IN EACH FACULTY AND STUDENTS WHO TRANSFERRED OUT OF EACH FACULTY AND THE PERCENT RETAINED BY EACH FACULTY (N=7)

	r
Importance of goals during college[1]	
Increased openness to ideas and experiences	-.91
Degree SUNY/B courses contributed to goal fulfillment[2]	
Increased openness to ideas and experiences	-.83
Importance of goals - senior year[1]	
Increased understanding of responsibilities of marriage and family life	.84
Increased ability to handle responsibility	.75
Proportion of major faculty who:[3]	
Know their material well	.72
Proportion of non-major faculty who:[3]	
Treat students impersonally	.89
Don't seem to care if class material is understood	.74
Relate material to contemporary life	-.73
Give assignments that are irrelevant to the course	.71
Express concern and dedication to their professional area	-.71
Communicate their knowledge to students skillfully	-.70
Require students to buy books that are seldom referred to	.67
Consider student opinion in determining class objectives and procedures	-.67
Importance SUNY/B functions should have[1]	
Provide career preparation	-.94
Promote excellence in teaching	-.81
Foster individual responsibility	-.77
Prepare students to be leaders	-.77
Encourage development of personal standards and values	-.69
Lead in initiating changes in society	-.68
Promote knowledge and interest in world-wide affairs	-.68
Encourage the development of critical thinking and problem-solving skills	-.67
Prepare students for graduate or professional school	-.67
Importance SUNY/B functions actually have[1]	
Encourage the development of critical thinking and problem-solving skills	-.85
Foster individual responsibility	-.79
Encourage development of personal standards and values	-.76
Provide career preparation	-.67

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[1] Importance of goals during college and in the senior year and the importance SUNY/B functions should and actually have were rated along a five-point scale ranging between *no importance* and *extremely high importance*.

[2] Degree of fulfillment of goals during college was rated along a five-point scale ranging between *not at all* and *totally*.

[3] Proportions of major and non-major faculty were judged along a five-point scale ranging between *true for no faculty* and *true for all faculty*.

various Faculties. These results appear to confirm the "college fit" hypothesis in an intriguing way: Faculties which retain more will also have students whose goals are initially *and* finally more firmly developed. Further, it is the goals important in adolescence in our culture: making friends, understanding others, understanding what marriage is all about; and goals becoming more important in early adulthood: understanding responsibility, and the interaction of these responsibilities with one's own values; *and not intellectual goals or the academic environment* which are of primary importance to retention of these students. Since it is quite reasonable to infer that these goals "fit" more perfectly the institutional goals encountered by students in the Faculties where interpersonal relationships and responsibilities are not only important but encouraged (i.e., Health Sciences and Management; and to a lesser degree, Education, Social Sciences, and Arts and Letters) and less perfectly the institutional goals encountered by students in Faculties where academic or intellectual goals are emphasized (i.e., Engineering and Natural Sciences), students in higher-retention Faculties will tend to begin and continue to be more socially and personally goal-oriented. Conversely, students who initially choose a major in a lower-retention Faculty will either transfer (if their social or personal goals are too great a mismatch with the academic goals expressed in that Faculty unit) or persist (if their social or personal goals are judged "insignificantly different" from those of their department; or else lessen the importance attributed to these social and personal goals). Further, there is no evidence from this study that persisters in Faculties with lower retention rates become more academic or institutionally goal-oriented, even though they may become less socially and personally goal-oriented.

Despite the primary importance attributed to the "college fit" model and students' personal goals in interpreting these results, the academic and institutional factors also appear to play a crucial, but secondary, role in the retention of students by Faculties. As faculty, university staff, and other students are the transmitters of the University culture and the meaning of a college experience to students en masse, the differences found between persisters and transfers in the various Faculties indicate a non-homogeneous culture is being experienced by SUNY/B students.

Students who emphasized the importance that certain of the functions of SUNY/B should have were more likely to be persisters in lower-retention Faculties or transfers out of higher-retention Faculties. The significant functions are therefore those, or correlated with those, that cause differential retention rates by Faculties. The results for the ratings of non-major faculty suggest at least two possibilities. One possibility is that high-retention Faculties retain more students because the experiences of their students with instructors from other Faculties are less positive than are the experiences of students in low-retention Faculties. And, interestingly enough, the dimensions of these experiences are more social than academic; the strongest correlate here is the behavior, "treats students impersonally." (This suggestion certainly fits the "college fit" model.) The other possibility is that more students transfer out of a Faculty unit when social and personal characteristics of major instructors are out of phase with the students' own goals and perceptions of appropriate faculty behavior, while encountering a level of relevance, dedication, and skill in non-major faculty at least as good as that found in the initial major. Juxtaposing these two suggestions with the college fit model perhaps extends it: College freshmen aren't really looking primarily for the personal and social aspects of college in relating with their professors, but if their major instructors are seen to be too incongruent with their own values and behaviors and an equally high level of academic competence is perceived elsewhere, students will transfer.

Finally, the question of what manipulation of environment, what changes to the SUNY/B milieu, do these results suggest. The answer given here may be considered to be incomplete, but it is, to the author's mind, the only sensible one. Each Faculty at SUNY/B must judge its own retention rate as "good" or "bad," consider what changes, based on the results of the study, can be made; i.e., what changes are even feasible or desirable; and then experiment, as it were, by trial and error. As suggested above, the correlates of retention found in this paper do not give the causes of retention. A variable such as "treats students impersonally" is likely to be interpreted differently both by different students and different administrators, especially by students in as diverse a University as SUNY/B which supports Faculties of both Social Sciences and Engineering, Health Sciences and Natural Sciences. To assume that degrees of "impersonality" is a consistent yardstick of faculty behavior by students with such varying experiences is indeed a simplistic (and probably fallacious) one, but it fits current statistical models and allows one to make the first step towards prediction and control of retention rates. However, to the degree that survey research can measure faculty behavior and University functions in a consistent and reliable manner, the results do suggest that some changes in the lower retention Faculties might be desirable; and that incoming freshmen whose personal goals are more socially and less academically oriented should shy away from the lower retention Faculties of Engineering and Natural Sciences.

In conclusion, the results of this study are not dissimilar to those found by other researchers noted in Pentages and Creedon's review of institutional retention studies. Apparently students leave Departments and Faculties for similar reasons and similar environmental and personal antecedants that they choose to leave colleges and universities. The greatest strength, we might finally conclude, is therefore in our diversity; our differences. The fact that a student may find a match in a different Faculty or a different institution after an initial mismatch is certainly an encouraging aspect of the college experience and the somewhat panic-ridden issue of retention. The student is most important; of secondary import is the diversity of University environments.

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CHANGES IN DEGREE EXPECTATION, MAJOR CHOICE, IMPORTANCE OF CAREER ROLE AND DESIRABILITY OF CAREER ASPECTS FOR 1977 SENIORS

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Retention has recently become a major focus of interest in colleges and universities. Consequently, researchers are examining both the universities and the students who transfer or dropout of them in order to determine why students are leaving college. It is also necessary to look at the students who remain in college to investigate why they persist when many of their classmates do not. This information will help educators to understand their students better and will enable them to learn more about what contributes to student persistence. Hopefully, this knowledge will suggest program and personal modifications that will result in higher retention rates.

Characteristics of persisters as entering freshmen and at the time of graduation were examined as were changes in those characteristics. Four aspects of the college experience were selected for investigation: highest degree expectation; the relationship between the time when a major was declared and the number of times the major was changed; the importance of a career role in relation to other roles; and the desirability attributed to various aspects of a job or career.

Methodology

Population and sample. All students expecting to enter the State University of New York at Buffalo (SUNY/B) as freshmen in the fall of 1973 were invited to attend one of several conferences of the Summer Orientation Program conducted during July and August of 1973. The population used in this study consisted of the 1,875 students who attended a conference and completed the College Student Perceptions Survey (CSPS) which was administered during each conference.

In mid-April, 1977, a follow-up CSPS was mailed to a random sample of 700 students who were registered at SUNY/B and expected to graduate in May. The 241 students who completed and returned usable questionnaires constitute the sample upon which this paper is based.

Questionnaires. The 1973 CSPS consisted of 305 multiple-choice items which concerned several aspects of student life. Questions were asked about the students' high school experience, career plans, enjoyment of activities, interpersonal relationships, family, and descriptions of self.

The 1977 follow-up CSPS consisted of 298 multiple-choice items, 196 of which were identical to items on the 1973 questionnaire. Each senior's response to each of these items was matched to the response given as a freshman. The present report is based on 23 matched items which concerned highest degree expectation, importance of a career role relative to other roles and desirability of certain aspects of a job or career. Also analyzed was the time the current academic major was selected relative to the number of changes in major choice made by the student.

Data Analysis. Regression and repeated measures analyses were performed to analyze the data. Differences significant at the .05 level of confidence are reported.

Results and Discussion

Highest Degree Expectation. The change in highest degree expectation between freshman and senior year was examined (see Figure 1). In the freshman year 47 percent of the students reported that they intended to obtain a bachelor's degree, while 53 percent intended to obtain a post-baccalaureate degree. However, by the time they were seniors, 27 percent reported that they expected to obtain only a bachelor's degree while 73 percent of the students indicated that they expected to obtain a degree beyond the baccalaureate.

More specific information is presented in Table 1. Forty-five percent of

FIGURE 1 HIGHEST DEGREE INTENDED BY FRESHMEN AND SENIORS N=228

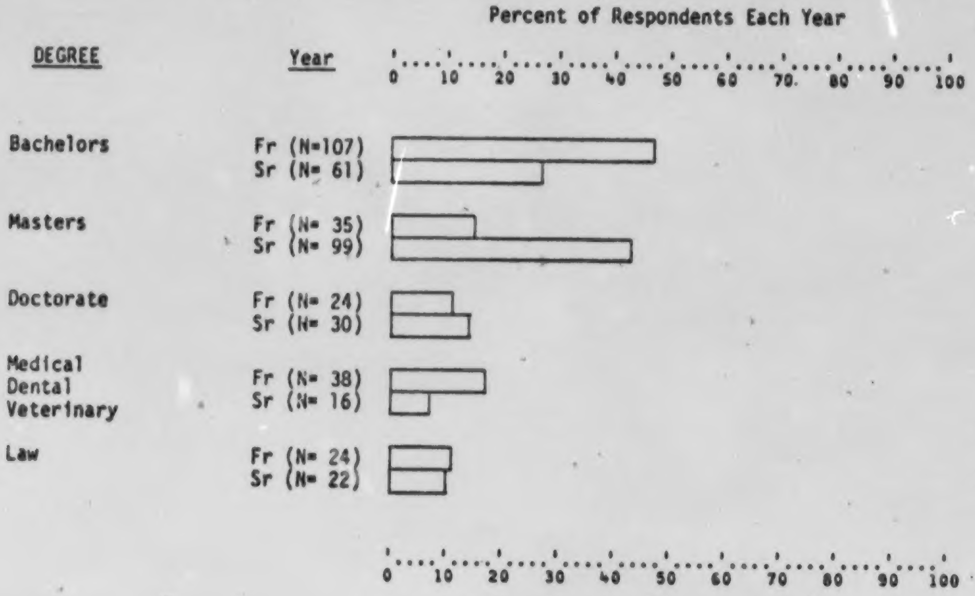

TABLE 1 CHANGE BETWEEN FRESHMAN AND SENIOR YEARS IN HIGHEST DEGREE INTENDED

Freshman Highest Degree Expectation			Senior Highest Degree Expectation									
Degree	TOTAL		Bachelors		Masters		Doctorate		Medical Dental Veterinary		Law	
	N	%	N	%	N	%	N	%	N	%	N	%
Bachelors	107	47	43	70	51	52	6	20	3	19	4	18
Masters	35	15	6	10	25	25	4	13				
Doctorate	24	11	4	7	8	8	9	30	1	6	2	9
Medical Dental Veterinary	38	17	5	8	10	10	9	30	12	75	2	9
Law	24	11	3	5	5	5	2	7			14	64
	228		61	27	99	39	30	13	16	7	22	10

the students expected to obtain the same degree in their senior year as they did when they were freshmen. This information is presented in the main diagonal of the table. The largest change in highest degree intentions occurred among those who originally intended to obtain a bachelor's degree. By the time they were seniors, 51 students or 48 percent of this group intended to obtain a Master's degree. Another large change was a decrease from 38 to 16 students (58 percent) of those who had originally intended to obtain a Medical, Dental or Veterinary degree.

In general, many of the students did not change their highest degree intentions. However, after four years at the university some may have gained a better knowledge of themselves, their capabilities, and life goals and thus adjusted their degree intentions accordingly. The reasons that students change their degree intentions are diverse. They may change because they are no longer interested in the field, or because they are not accepted into the program they originally desired, or because they wish to terminate their schooling sooner. Thus, college experience appears to aid students in shaping their expectations of what they are capable of accomplishing and therefore they change degree intentions to accommodate their new knowledge of themselves.

Major Choice Changes. Many students enter college without a declared major. They want a college education but they are undertain about the specific area in which they want to concentrate. Therefore, students may change their declared major several times before arriving at their final major choice. The relationship between the time the final major choice was declared and the number of times the major was changed was examined. A regression analysis of these data yielded a regression coefficient of 0.61 (d.f. = 238; $p < .01$). Thus, a relationship exists between the time at which a student declares the major with which s/he will graduate and the number of times s/he changes major fields (Table 2).

Table 2 RELATIONSHIP OF TIME MAJOR WAS CHOSEN AND THE NUMBER OF TIMES THE MAJOR WAS CHANGED

	Number of Times Major was Changed					
	None	One	Two	Three or More	Number	Percent
Before entering college	101	1			102	43%
Freshman or sophomore years	37	57	15	7	116	48%
Junior year	3	9	5	3	20	8%
Senior year		1	1		2	1%
TOTAL: Number	141	68	21	10	240	
Percent	59%	28%	9%	4%		

Forty-three percent of the students in the sample decided on their major before entering college, 48 percent decided in their freshman or sophomore years, and nine percent decided in their junior or senior years. The majority, 59 percent of the students, did not change their major choice at all, 28 percent changed their major choice once, nine percent changed twice, and four percent changed their major three or more times.

Among the 102 students who chose their major field before entering college, 101, or 99 percent did not change their major at all. Among the 116 who chose their major in their freshman or sophomore years, 79, or 68 percent had changed their major at least once; nineteen, or 86 percent of the 22 students who decided upon their major field in their junior or senior year also had changed their major at least once.

Thus, students who entered college with a major already decided and persisted at SUNY/B were unlikely to change their major choice. At SUNY/B the students declare their major field at the end of their sophomore year. Up to this time some students explore other alternatives until they find the major which is best

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suited to them. These students are likely to change their major at least once before they are sure they have chosen the best one.

It may be that most students enter the university with a major already chosen, but change majors after a year or two at the university. After taking several courses in their major field the students may realize that their original major choice is not the best one for them. It may be that the students discover that they dislike the major area, that the area is too difficult for them, or that they are not accepted into the academic department they originally chose. Thus the students will choose a different major after they have gone through a period of self-evaluation encouraged by their university experience.

Importance of the career role. Throughout an individual's life s/he has many different roles. Some of these roles may change in the individual's lifetime and new roles may be added. However, some roles, such as the career role, are likely to remain the same for a large part of the individual's life. The importance of this role in comparison to other roles the student may have was examined. Eight percent of the seniors reported that they expected that their career role would never be more important to them than other roles, while 17 percent responded that they expected that their career role would always be more important to them than other roles. However, the majority of students, 75 percent, reported that they expected the importance of the career role to alternate with that of other roles in their lives. In general, these students did not change their perception of the importance of the career role after four years in the university.

Desirability of career aspects. Many students have perceptions of the aspects of a job or career that are desirable to him/her. The university experience, as well as employment experience and the perception of the economic/job market situation, may influence and stimulate changes in the desirability of certain aspects of a job or career. Repeated measures analyses were performed to

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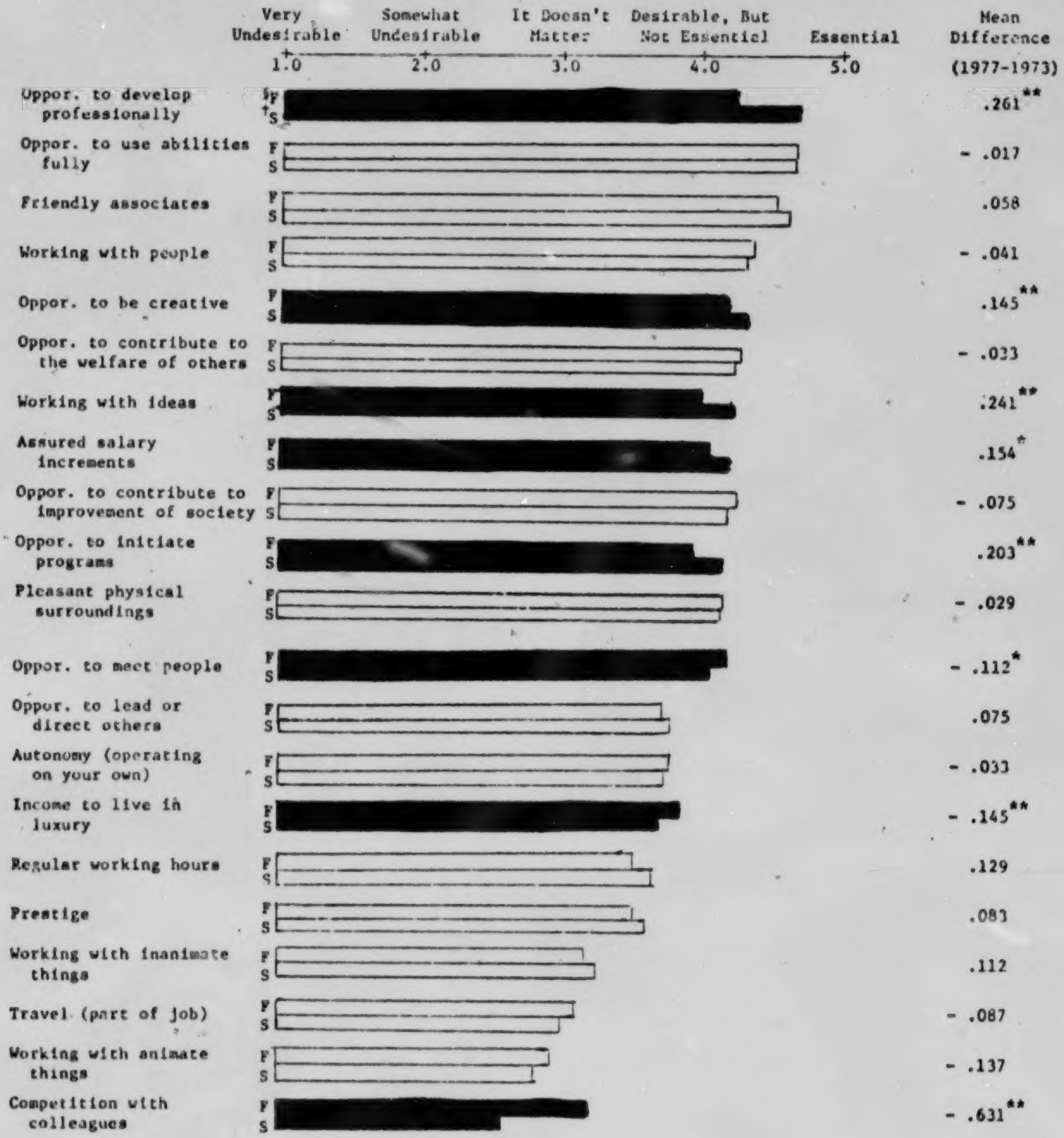
examine the changes in the desirability of these aspects between the freshman and senior years (Figure 2).

FIGURE 2 MEAN DESIRABILITY OF CERTAIN ASPECTS OF A JOB OR CAREER IN 1973 AND 1977 N=241



$1973

†1977

Darkened bars indicate significant mean differences

*p < .05

**p < .05

Aspects of a job or career which were reported to be essential to the students as seniors were those referring to professional development *(opportunity to develop professionally* and *to use one's abilities and talents fully)* and those referring to a pleasant aspect of a job, such as *having friendly associates.* The majority of the aspects listed were perceived as desirable, but not essential. Some of these desirable aspects suggested interest in job security and job benefits, specifically, *assured, regulated salary increments.* Other aspects perceived as desirable by the students were those which referred to their altruistic nature *(opportunity to contribute directly to the welfare of others* and *to the improvement of society as a whole)*, and those which referred to the student's assumption of a responsibility *(opportunity to initiate programs or projects, to lead or direct others,* and *to be autonomous).* Finally, aspects of a job or career which were neither desirable nor undesirable to the students were those which are found in relatively few jobs: specifically, *travel as part of the job* and *working with animate things.*

Decrease in desirability. The aspect which was perceived as least desirable by the seniors was *competition with colleagues.* However, as freshmen, these students found competition more desirable. Perhaps after existing in a highly competitive environment for four years, students sought a future in a career which offered a cooperative atmosphere. Another aspect whose desirability decreased between freshman and senior years was *opportunity to meet people with whom one might interact socially outside of work.* As freshmen the students may have found this aspect more desirable because they were beginning a new experience in a highly social setting and were interested in meeting people and making new friends, whereas, by the senior year they have formed relationships and did not seem to be as dependent on relationships formed at work.

A third aspect which was perceived as less desirable in the senior year was *income enough to live in luxury*. It may be that the seniors had become more realistic in their view of the benefits of work and found other "fringe benefits" of work more desirable than luxurious living. For example, the students found *assured, regulated salary increments* more desirable in their senior year than in their qreshmen year.

Increase in desirability. Opportunities for professional development were significantly more desirable to students in their senior year at the university than before they started their university experience. These aspects were: *opportunity to develop professionally, to be creative, to work with ideas*, and *to initiate programs or projects*. It is possible that the students incorporated some of the traditional values of the university into their personal schema. Therefore, they perceived the aspects of a job or career embodying these values to be more desirable after the university experience.

Stable aspects of a career. The desirability of some characteristics changed very little between the students' initial and senior years at the university. These aspects were concerned with independence and responsibility *opportunity to use abilities fully* and *autonomy)*, the altruistic nature of the student *(working with people* and *opportunity to contribute directly to the welfare of others)*, and the desirability of a pleasant work environment *(friendly associates* and *pleasant physical surroundings)*. These areas seem to reflect relatively stable concerns of the students.

Conclusions

After four years at SUNY/B the students increased their knowledge of themselves, their capabilities, desires, and life goals. The university experience provided an opportunity for students to develop and pursue their interests and afforded them the opportunity to select majors appropriate to their skills and interests. The university also helped students attain a better conception of various aspects of a job or career. In general, desirability of career aspects which reflect a more practical outlook on the world of work were increased after four years, while desirability of other aspects remained constant. It seems that these students had been socialized into the university system, espousing to a greater extent some traditional university values, including intellectual growth, professional development, and personal initiative and creativity.

PERCEPTUAL CHANGES IN STUDENTS BETWEEN THEIR FRESHMAN AND JUNIOR YEARS

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Retention has become a hot topic lately among college personnel. The reasons for such avid interest are obvious - in the most simplistic terms, colleges cannot exist without students and without colleges a system of higher education cannot exist. Therefore, assuming that higher education has some socially and academically redeeming values, it would behoove administrators and faculty to know as much as possible about both the students who are likely to persist in college and those who are apt to drop out.

This study attempts to provide an increased understanding of students who persist by examining the ways in which they change from the beginning of their freshman year to the end of their junior year. While no comparisons can be made among persisters, stopouts and dropouts, awareness of the changes that persisters experience in three years of college may help in understanding why dropouts leave school. If evidence can be provided that students do indeed develop personal and interpersonal skills while attending college, than arguments supporting the value of college can be made. Furthermore, as administrators and faculty understand their students better, they are more capable of providing necessary and helpful programs and, hopefully, achieving a higher level of retention.

Method

The population of interest for this study is a group of 2,148 men and women who entered State University of New York at Buffalo (SUNY/B) as full-time freshmen in the fall semester of 1973.

All the incoming 1973 SUNY/B freshmen were invited to attend one of twelve conferences of the Summer Orientation Program. During the conferences, a questionnaire, the College Student Perception Survey (CSPS), was administered to the students. Usable surveys were completed by 1,875 incoming freshmen. Approximately three years later, in the spring of 1976, a follow-up College Student Perception Survey was sent to a random sample of 700 students from the original group who completed the 1973 CSPS and were registered for the Spring semester of 1976. Two hundred and eighty students completed and returned usable questionnaires and constitute the sample upon which this study is based.

A four-year follow-up study of the same population reports that five percent of the original sample of 1,875 students were stopouts; they had left school for at least one semester but returned by spring 1977. On the same basis, roughly 14 students (or 5%) in the sample reported in this study may have been stopouts.

A chi-square test showed that the distribution by sex of the 280 students in the 1976 sample did not differ significantly from the sex distribution of the 1973 population.

Questionnaires

The 1973 College Student Perception Survey (CSPS) administered to incoming freshmen consists of 305 multiple-choice items concerning several aspects of a student's life: high school experiences, career and educational plans, enjoyment of various activities, relationship with family, interpersonal relationships, self-description and life goals.

The 1976 three-year follow-up CSPS consists of 301 multiple-choice items, 127 of which were identical to questions on the 1973 Survey. The present study is based on responses to 103 of those identical items covering activities, interpersonal relationships, relationship with parents and self-description. Also included in this study is an analysis of 27 questions from the 1975 CSPS that deal with the reasons students gave for the change or lack of change they perceived in themselves.

Data Analysis

Responses to each of the 103 identical items from the 1973 CSPS and the 1976 CSPS were examined using a repeated measures design which indicates the difference in responses to the same item in 1973 and 1976.[1] The purpose of this study is to investigate whether or not students changed significantly between their freshman and junior years. Differences significant at the .05 level of confidence between the responses in 1973 and 1976 are reported.

In certain sections of the surveys (Activities, Understanding values of others and Comfort in association) one of the five response options was categorical as opposed to continuous.[2] In these sections, the non-continuous responses were treated as missing data. In another section, Relationship with parents, all four response options are categorical. The options were combined, producing a set of continuous response options and allowing the use of analysis of variance techniques. All responses of zero or a blank were treated as missing data, except in the section, Reason for Change, where a zero was a legitimate response. In this situation a zero meant that no reason contributed to a person's change or lack of change. In any case, where response to an item was treated as missing data, the response to the corresponding question in the other survey was also treated as missing data.

Results and Discussion

Of the 103 items examined on the 1973 and 1976 CSPS, responses changed significantly over a three-year period for about half of the variables. In approximately three-fourths of the significant cases, the mean response in the third year was greater than the mean response in the first year, indicating, with four exceptions, a positive change or personal growth in a particular area. For example, students associated more frequently with peers of the other sex in 1976 than in 1973. Or, students' responses showed they were more socially self-confident in 1976 than in 1973. Thus most of the recorded differences of these persisters between their freshmen and junior years were of a positive nature. These differences plus those in which the 1973 means were higher than the 1976 means will be discussed in the following sections.

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[1] The program used was NYBMUL, written by Jeremy D. Finn, SUNY at Buffalo, 1976.

[2] The categorical response option for Activities was, *I haven't tried this*. For Understanding values and Comfort in association, it was *Not applicable*.

Activities

Students were asked how much they enjoyed each of 13 listed activities. The response options were: *not at all, slightly, moderately* and *a great deal.*[3] With three exceptions, there was virtually no change in the students' enjoyment of these activities between their first and third years, Those exceptions were:

enjoyment of attending parties
enjoyment of dating
enjoyment of meeting people.

In each case the mean response in the first year was higher than the mean response in the third year. In other words, students enjoyed these three activities significantly less as juniors than as freshmen. These surprising results seem to indicate that juniors in this study are less sociable than they were as freshmen. However, other data from this study, discussed later, show a trend over three years in the direction of increased sociability. It may be that the novelty of these activities has simply diminished over the years, or that close relationships have already been established and consequently have lessened one's interest in socializing.

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[3] Responses of the fifth option, *I haven't tried this*, were omitted from the analyses.

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Interpersonal Relationships

Students were asked about their relationships with various groups of people in five areas: Frequency of association, Understanding their values, Comfort in association, Willingness to discuss personal feelings and Willingness to discuss important decisions. Within these areas a definite trend in the personal growth of these persisters is discernible. Over the three-year period, students are generally more sociable, more understanding of other people, less inhibited and more open about discussing their feelings and problems.

In the area, Frequency of association, the mean response in the third year was significantly higher for five of nine variables. They were:

peers of the same sex
peers of the other sex
people of a different religion
people of a different race
people of a different socio-economic status.

It seems likely that this increase of association is due to more opportunities to interact with peers at a large university. Fortunately, students do not appear to be spending their college careers hidden away in their rooms.

In only one case, Frequency of association with small children, did freshmen associate significantly more often than they did as juniors.

In the area, Understanding the values of others, the trend toward increased understanding of people was clearly evident. Of the eight variables in this section, the mean response in 1976 was significantly higher than in 1973 on seven. They were:

peers of the same sex
peers of the other sex
children
elderly people

people of a different religion

people of a different race

people of a different socio-economic status.

With most of these groups of people there seems to be a logical relationship between how often one associates with these people and how well one understands their values.

The two exceptions are Elderly people and Small children. Apparently being out of contact with people from the two extremes of the age spectrum gives an individual a different perspective. Some aspects of the college experience may be a factor in increasing understanding; for example, taking courses in developmental psychology or volunteer work with the young or old.

In the section on Comfort in association only four variables of eleven were significantly different. Despite the relatively small number of significant items, a trend toward being more at ease with people, especially parents, is apparent. The students were more comfortable in their third year in their association with:

children

elderly people

parent of same sex

parent of other sex.

Perhaps the most striking change occurred in the sections, Willingness to discuss personal feelings and Willingness to discuss important decisions with people. Students were asked to indicate by a *yes* or *no* response whether they would discuss their most personal feelings and consult on important decisions with people in each of the six following groups: peers, parent, and older adult of the same sex, and peers, parent, and older adult of the other sex. Students were significantly more willing in the third year to discuss both personal feelings and consult on important decisions with people in each of these groups.

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From these results it seems apparent that during three years of college, students learn to trust people more and become more open about their feelings and problems.

Parental Relationships

Students were asked to indicate how descriptive 11 listed aspects were of their relationship with their mother and father. Of the four categorical response options in this section, two were collapsed into one, resulting in three options which were treated as continuous. The three options were: *no, not a part of the relationship; yes, on my or their part;* and *yes, on the part of both of us.* Generally, students' relationships with their parents improved slightly over three years. The feelings and behaviors listed in this section were attributed more often to *yes, on the part of both of us* by the students as juniors than as freshmen. However, the sample changed significantly on only two variables: Financial help and Loyalty. In both cases they were more a part of the mother-child relationship in 1976 than in 1973.

Description of Self

In the section Description of self, students were asked how descriptive of them a list of 28 attributes and abilities were. Mean responses in the third year were higher on these four adjectives; that is, the traits were more descriptive of the students as juniors than as freshmen:

considerate of others
self-confident (socially)
independent
pessimistic.

Except for pessimistic, these results seem to indicate a greater feeling of ease around people on the part of juniors. Furthermore, students seem to have developed a greater capacity to recognize and attend to their needs as well as the needs of others. On the other hand, the mean responses in the third year were lower on the following variables:

self-disciplined
enthusiastic
open to ideas.

It is surprising that persisters are less self-disciplined as this trait would seem to be a prerequisite for completing college.

There were no significant increases in the students' perception of their ability to cope with certain aspects of life. However, for three, there was a decrease. They are:

ability to cope with competition
ability to cope with loneliness
ability to cope with success.

These results suggest that as freshmen, students were better able to cope with certain aspects of life than they were as juniors. It may be that students are no less able to cope. Perhaps being on their own and having to face these conflicts alone just makes it seem to them that they are less able to cope.

It seems reasonable to suggest that the students' perception of decreased self-discipline, enthusiasm, openness to ideas and the abilities to cope in several areas contributed to their increase in pessimism.

Reasons for Change

In 1976, the sample was asked to indicate what contributed to any change or lack of change they experienced over the three years relative to the 28 variables in the section Description of self. They made their selections from a list of 20 reasons, ten of which were simply the inverse of the other ten (e.g. living at home or living away from home). There was also a space for students to write in reasons not listed. Since it would be extremely complicated to report the entire results, only the five most frequently cited reasons will be given for each type of change. The reasons that students gave for not experiencing any change will not be listed or discussed; the explanations and their interpretations seem ambiguous and not too meaningful.

Of the people who stated that these attributes and abilities were more descriptive of them in the third year, the five reasons most frequently given for the increase were:

Increased understanding of my strengths and weaknesses

Exposure to and understanding of a variety of people with diverse backgrounds, interests and values

Positive reaction to being in an academic environment

Understanding and articulation of my values and priorities

Having close friendships.

Of the people who stated that these adjectives were less descriptive of them after three years, the five most frequently given reasons were:

Negative reaction to being in an academic environment

Other (various reasons reported)

Increased understanding of my strengths and weaknesses

Exposure to and understanding of a variety of people with diverse backgrounds, interests and values

Understanding and articulation of my values and priorities.

Three reasons common to these two types of changes are: understanding one's strengths and weaknesses (rank: 1 and 3), understanding others (rank: 2 and 4), and understanding one's values (rank: 4 and 5). Regardless of the direction in which the change takes place, these three influential factors seem to be important and, perhaps, necessary variables for personal change.

Reaction to the academic environment is another important factor in these students' personal growth. Reacting positively to the academic environment is probably a result of achieving some success. This reinforcement, not surprisingly, seems to improve self-concept. On the other hand, a negative reaction to the environment seems to have the opposite effect on students in this sample.

Summary

A sample of 280 students were given the College Student Perception Survey in the fall of 1973 just prior to their freshman year and three years later in the spring of 1976. Response to 103 questions dealing mainly with social and personal development were compared and analyzed to investigate the change experienced by students during three years of college. Students in this sample went through many significant changes, especially in the area of social interaction. For the most part, after three years of college these students associated more frequently with people, understood them better, were more comfortable with them and were more willing to discuss personal matters. In other words, students matured and became more open, sociable, and confident with others. One puzzling negative aspect that this sample displayed was their decreased ability to cope with certain aspects of life such as competition, loneliness, and success.

Overall, it is evident from this study that the university experience possesses many redeeming qualities which could possibly be exploited to further improve retention. Administrators could enlighten present and potential students by advertising through a variety of media techniques the fact that students go through many positive changes while attending college. By knowing more about a university, potential students can make a more realistic choice in their decision to attend and have a more accurate picture of what to expect. Also, administrators and faculty who wish to use these results would have some idea as to what programs or approaches may be productive in helping students persist in college.

IN RETROSPECT: THE PURPOSE, FUNCTION, AND VALUE OF A COLLEGE EDUCATION

Larene Hoelcle
SUNY at Buffalo

The purpose and functions of higher education and the values students derive from it are topics of ongoing debate. Contemporary arguments cite traditional and historic models as well as current philosophical perspectives in justification of the programs and policies of colleges and universities. The similarities as well as the contrasts among these prototypical models are suggested by the following selection:

> Bologna and the medieval universities, with their faculties of medicine, law, and theology, preserved the medieval world's knowledge and provided society with the professional services of deserving young men who could find wealthy patrons.
>
> American colonial colleges, modeled upon Oxford and Cambridge, educated the nation's elite who would inherit wealth and power, transmitting Western cultural traditions and placing young men in contact with others of their class with whom they would deal in business and politics.
>
> Universities developed with the belief in the possibility of creating new knowledge and a "scientific" rather than a "religious" approach to the world. Like their German models, American universities had academic and intellectual purposes, and they were designed to serve society by serving the cause of science.
>
> Land grant universities were founded to add direct public service to other higher educational functions. Research and teaching were directed to the practical needs of an increasingly complex society.
>
> During the turmoil of the 1960's, universities became embroiled in matters of public policy more directly than ever before. Many of them had become "multiversities," attempting to be all things to all people. Radical students and their mentors wanted the university not only to serve society, but to remake its social, political and economic institutions.

These differing purposes, embodied in institutions of higher learning, suggest a variety of educational functions, including the enhancement of individual growth, development of interpersonal and social competence, acquisition of knowledge for its own sake or for some "practical" use, vocational and professional preparation, and service to and/or critical appraisal of, the community and the larger society. Not surprisingly, these are responses that were frequently cited by a sample of former college students who were asked to report their perspectives on the purposes, functions, and values of higher education.

The people who responded to these questions were part of a longitudinal study, A Biography of a Class, which began in 1966 with the selection of a random sample, stratified by sex and original residence status,[1] of 100 entering freshmen at the State University of New York at Buffalo. A similar sample was drawn from among the entering SUNY/B freshmen in 1967. Participants were followed for ten years whether or not they persisted until graduation at SUNY/B. They were interviewed during the college years and followed by questionnaire thereafter. Their perceptions of the purposes, functions, and value of college were inquired into as part of the last questionnaire, sent to the 1966 group in 1976 and to the 1967 group in 1977.[2] A subsample of those who had responded to both the fifth-year and the tenth-year questionnaires was drawn for the purpose of comparing the responses of one group of study participants at different times. There are more resident women than resident men and women outnumber men in the tenth-year response group, a condition exaggerated in the subsample.[3]

For the most part, these respondents' post-secondary experience was at SUNY/B, a "multiversity" which, in the late 1960's, was, in some people's perceptions, becoming the "Berkeley of the East." A multi-million dollar campus was planned, larger in land area than the city of Brazilia and serving 50,000 people daily. When the study participants entered this university in 1966 and 1967, SUNY/B was indeed undergoing "interesting" times, which continued until the two entering classes had graduated or left school. While they were in school, these students experienced civil rights and Viet Nam protests, the killings at Kent State and Jackson State colleges, as well as our own marches, demonstrations, and teach-in's. They left the university in the early 1970's, a time of increasing pressure to go to graduate or professional schools, which were enjoying a seller's market, and a job situation which made it clear that good jobs were no longer available for the asking to the holders of college degrees. These conditions, and the experiences they helped to produce, probably had great impact on our respondents' views of the purposes, functions, and value of college education.

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[1] Residents, as entering freshmen, lived in university housing; commuters lived off campus, usually with their parents.

[2] There are differences between these two groups which will not be discussed here. Their experiences were similar enough to justify combining them for purposes of this report.

[3] The response group is not representative of the original samples, and findings, while interesting and suggestive, cannot be generalized to any larger group.

The Questions

The three questions with which this report are concerned were phrased as follows on the tenth-year questionnaire:

> WHAT DO YOU NOW FEEL IS THE PURPOSE OF A COLLEGE EDUCATION?
> WHAT DO YOU THINK THE FUNCTION OF A UNIVERSITY SHOULD BE?
> WHAT DO YOU THINK WAS OF MOST VALUE TO YOU IN YOUR UNIVERSITY'S EXPERIENCE?

The "value" question was asked of the same samples in the fifth-year questionnaire although the phrasing was slightly different:

> FROM YOUR PRESENT PERSPECTIVE, WHAT DO YOU SEE AS THE VALUE OF YOUR COLLEGE EXPERIENCE -- BOTH ACADEMIC AND NON-ACADEMIC?

It is clear that respondents were able to discriminate between the "purpose" and "function" questions because their responses are different, although precisely how they differentiated these two words is not at all clear. For many, "purpose" was the broader term, while "function" implied the means an institution might use to achieve its ends. For some, the word "should" in the "function" question implied "what ought to be," so they answered the "purpose" question in terms of what they believed was really happening, and expressed their ideals in response to the "function" question. Others, whether they distinguished between the two terms or not, reported the purposes of a college education and the function of a university to be the same. The "value" question was answered in personal terms, reflecting respondents' perceptions of what the institution and the college experience did for them as individuals.

The Response Categories

One further note is necessary concerning the definitions of the response categories in which various purposes, functions and values of college are grouped and reported (Figure 1). The flavor of the individual responses is lost in these definitions, as is the perspective of individual respondents who often suggested three or more of these categories in one short sentence. However, nearly all of the responses could be sorted into one or several of these categories, and they do suggest what, in retrospect, were important to this sample of young adults about their college experience.[4]

Figure 1 DEFINITIONS OF CODING CATEGORIES

Personal (Self-development)
Concerned with self, feelings, capacities, needs, identity, maturity, interests and leisure pursuits, values and goals.

Interpersonal/Social
Concerned with interpersonal experiences, understanding of other people, and the quality of relationships with friends of both sexes.

Societal
Having to do with societal changes and conditions, global influences on individuals and societies, and social pressures toward conformity with certain behaviors.

Academic/Educational
Pertaining to formal and informal learning experiences, and educational pursuits and goals.

Intellectual
Concerned with intellectual interests and accomplishments, involving reading, writing, thinking, creating, and development perspectives on the world.

Vocational/Professional
Concerned with work experiences, job or career, and long-range vocational goals.

Financial considerations

Nothing

Other

Don't Know, Uncertain

No Response

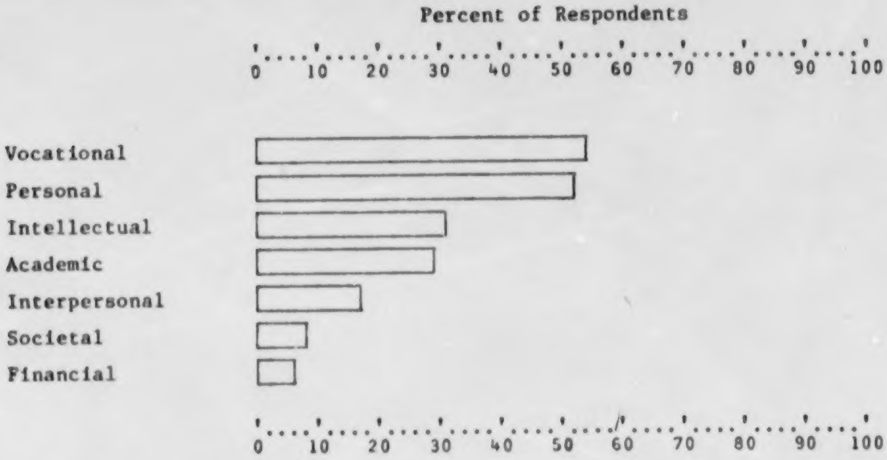
---

[4] Quotations from the questionnaires are interspersed in *script* to illustrate the character of the responses.

The Purpose of a College Education

Vocational and Personal outcomes were most frequently cited as purposes of a college education by study participants ten years after they began their higher educational experience (Figure 2). Fewer than a third of the group cited Intellectual or Academic purposes, and fewer than a fifth reported Interpersonal purposes. Men mentioned Vocational preparation, direction or experience more often than women did, and more often than they cited other purposes.

Figure 2 THE PURPOSE OF A COLLEGE EDUCATION N=84



> *To allow people to acquire knowledge and skills which will give them a vocation and to further their own personal development through social and intellectual development.*
>
> *It should prepare a person vocationally and socially for the future.*

In contrast, women cited individual development, preparation for the future, increased self-awareness, or some other Personal purpose more frequently than did men and more often than they cited any other category.

> *To prepare one for the future. To aid in a knowledge of oneself and what is to be done for the next 80 years.*
>
> *It's a testing ground for people to experiment with their capabilities and interests.*
>
> *To give one the resources to survive in as elegant and self-satisfying a way as possible (Not to sink into specialization).*

Those who had earned professional degrees by the tenth year, although most of these were men, more frequently cited Personal than Vocational purposes of a college education. Single people more often than married ones, and those with degrees more frequently than those without, said that the purpose of college included Intellectual stimulation or growth, or the acquisition of a facility in critical thinking. Such Academic purposes as the acquisition of a broad, liberal or general education were more frequently mentioned by former commuter men than by other groups.

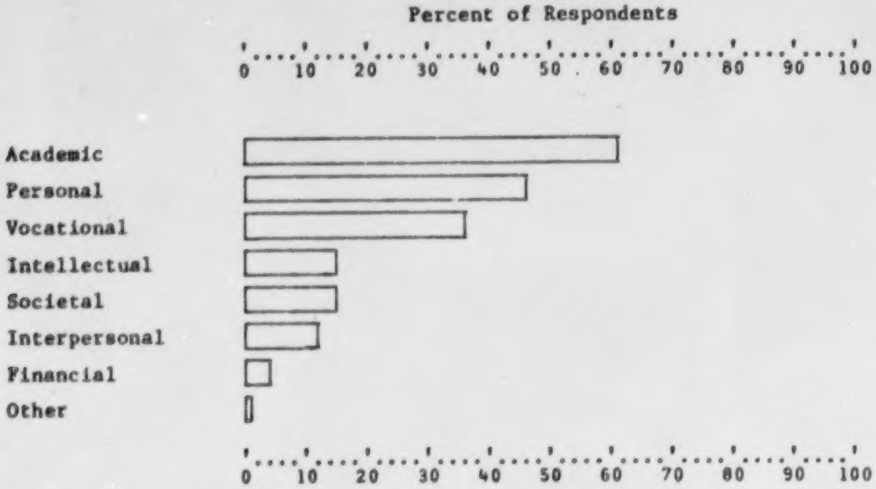
> *To give one an appreciation of knowledge for its own sake. Hardly anyone seems to esteem learning sufficiently.*
>
> *To provide a base of knowledge which will cause the students to further their education; training in a specific career; enhance social interaction among students.*
>
> *The overcoming of narrow-mindedness and the mastery of skills with which to support oneself and contribute to society.*

The Function of a University

Sixty-one percent of the tenth year respondents said that the function of the university should be to facilitate teaching and learning, or to provide the environment in which such Academic pursuits could take place (Figure 3). Most of those who were currently pursuing a degree cited some Academic function of the university, as did eighty percent of those who were not working.

> *The function of a university should be to give the student a well-rounded education.*
>
> *As a learning center - learning being academic areas and areas of social consciousness as well.*
>
> *To gain knowledge and prepare a person for the world around him.*

Figure 3 THE FUNCTION OF A UNIVERSITY N=84



Forty-six percent reported that the function of the university should be to enhance individual growth, development, preparation for life, self-awareness or some other Personal change. Two-thirds of those who had earned a professional degree and half of those who were working full time proposed some Personal function for the university.

> *Bringing about self-awareness and growth thru education -- giving tools to continue that development.*
>
> *Help individuals gain a better understanding of themselves and those around them - plus gain tools for coping with the world in a satisfying manner.*

About a third of the respondents saw the function of the university as Vocational preparation or guidance. Residents suggested these functions more frequently than did commuters, and married people cited them more frequently than did single people.

> *A broad liberal education coupled with practical, career-oriented training in some specific field.*
>
> *To provide a general education and career guidance; to develop a sense of self within society and a sense of responsibility to both; to offer guidance on the expenditure of leisure time.*
>
> *Mainly - to prepare the student for a job or profession - Secondly, to learn how to relate to others professionally and personally as well as expanding general knowledge.*

Fifteen percent reported that the university should provide Intellectual stimulation, or that it should teach critical thinking.

> *It should be a fertile environment for intellectual development of all types.*
>
> *To train a person to think critically as well as prepare him for his future, career-wise and otherwise.*

Another fifteen percent suggested that a university should provide some community or Societal service.

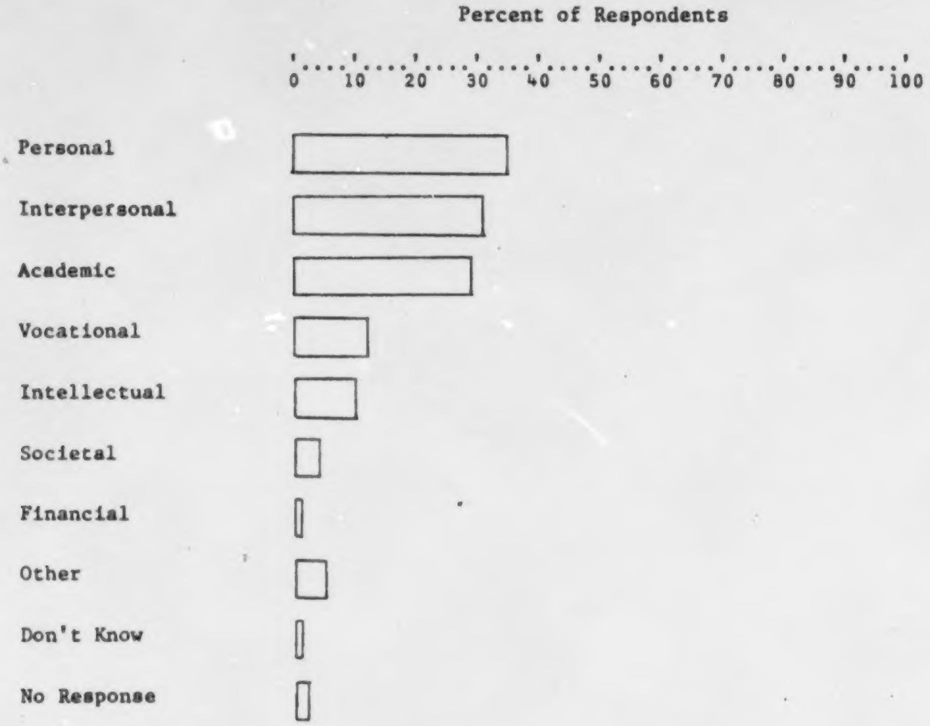
> *Dissemination of knowledge to students, contribute to the cultural and service needs of a community.*
>
> *To be leaders of and instigators for change in the community and to be resource centers for individuals wishing to broaden their minds and better their body.*
>
> *To provide the environment to support maximum growth of the individual; To provide direction and structure for that growth. To provide inspiration and also a source of knowledge in specific fields -- the fields that are most useful to society.*

The Value of College

Study participants were asked to report what the value of college was to them in the fifth year and again in the tenth year of the study. In both years the response group most frequently cited the values of Personal independence, of Interpersonal growth and relationships, and of such Academic areas as knowledge gained and the environment, courses and teachers that had made it possible (Figure 4). Vocational and Intellectual values were about equally likely to be mentioned ten years after college began although, in the fifth year of the study, Intellectual values had been more frequently cited than Vocational ones. A few women who had reported that college had been of no value to them, reported some value at the end of the ten-year period.

In the tenth year of the study, residents were more likely than commuters to cite the Personal values of college, and those who had earned professional degrees cited Personal values more frequently than any others.

Figure 4 THE VALUE OF COLLEGE N=84



> *Living on my own -- it forced me out of my shell and into the sorts of decisions and situations that helped me mature. Perhaps I should amend that report to read: living on my own with no responsibility but to survive and educate myself.*
>
> *General freedom to deal with the multiple stimuli (academic and social) exposed to and learn from my actions.*
>
> *The increase in self confidence was the most valuable achievement.*

Interpersonal values were more frequently reported by women than men, and by married more often than single people.

> *Learning to live with and accept people whose lives weren't exactly like mine.*
>
> *The people -- alive, creative, inquiring.*
>
> *Meeting the man I married.*

Academic values were more frequently cited by those who had earned master's degrees than by others, and by single people more frequently than by married people.

> *The mind opening experiences of philosophy courses I took and relations with other individuals.*
>
> *The knowledge I gained in my courses.*
>
> *Going to SUNYAB -- not the courses or learning but going to a large, state school, as politically and socially active as it was in the late 1960's.*
>
> *Great teachers!*

Men more often than women, and commuter men more often than other groups, reported the Vocational value of college to them. Everyone who cited Vocational values had received a bachelor's degree and ninety percent were working full time.

> *The education I received was of most value to me. It gave me my career in Pharmacy.*
>
> *Aside from mu professional preparation which was the most valuable thing, I also feel exposure to different kinds of people was extremely valuable.*
>
> *Obtaining an academic degree allowing me to obtain a vocational goal.*

Two quite different expressions of the Intellectual value of college attendance are suggested below.

> *Opening my awareness to personal intellectual development.*
>
> *The political upheavals that occurred because of the Viet Nam war -- it (the War) changed my views about our government policy, about morality and legality of the war but most importantly began in my own mind -- my own questioning and critical appraisal of what our leaders were doing. I realized I couldn't accept or believe everything they said or did.*

Conclusions

In the tenth year of the longitudinal study, respondents reported their perceptions of the function, purpose and value of a college education. The

Vocational emphasis may reflect the tight job market these students have experienced since they left college. The Academic function of the university may be seen by respondents as the means to their vocational and self-development goals. Personal development was the leading value derived from college attendance, and there is evidence that students want colleges to pay attention to their individual growth: it was the second most frequently mentioned purpose and function of higher education. Interpersonal growth is reported as a major value derived from college, but it was far less frequently mentioned as a purpose or a function of the academy.

These responses reflect in part the type of institution these former students attended. For example, it is plausible that students at a land grant institution would have mentioned the Societal service function of a university more often than did these respondents, or that a sample drawn from a small, highly selective college might have reported the value of Intellectual development more frequently than did this sample.

One cause of concern to those who would address the retention problems of this institution might be the discrepancy between the perceptions of value and purpose. For example, many respondents said that a purpose of higher education is Vocational development, but a smaller percentage reported that their college experience was of Vocational value to them. Many respondents held that a proper function of the university is Academic, while only half as many reported receiving Academic value from their college attendance. Finally, even though Personal values of college were reported more frequently than other values, fewer people reported deriving Personal values from college attendance than cited Personal purposes or functions for the university (Figure 5).

Figure 5 Discrepancies Between Reported Purposes, Functions and Values

	Vocational	Academic	Personal
Purpose	54%	29%	52%
Function	36%	61%	46%
Value	12%	29%	35%

In so far as perceptions of the Vocational value of college may in fact reflect job market conditions, and perceptions of the Academic value of college are made less relevant by the viewing of Academic functions as means to other ends, those who would increase student retention may well choose to put their efforts into enhancing the Personal and Interpersonal experiences of college students by creating, with undergraduates, human environments in which the opportunity for growth is expanded, and in which the student is free to pursue other goals.

STUDYING AN ENDANGERED SPECIES - COLLEGE STUDENTS

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INTRODUCTION

As college administrators begin to view college students as an endangered species that needs conservation and cultivation, institutional research has assumed a more vital role in the administration of many colleges. In the traditional "four F's" of institutional research - finances, faculty, facilities and freshmen - the focus is on numbers. With the advent of enrollment decline and attendant budget reduction, scrutiny of the numbers has intensified as decisions are made relative to: recruitment, retention and assignment of faculty and staff; use of space; definition of mission; inclusion of programs; and to recruitment and admission of students to the institution and to academic programs.

In the last few years the fourth F, freshmen, has gained increased attention. Not only do college administrators need recrods of admission, grades, financial need, program enrollment and graduation of their students; in considering recruitment and retention, they need information about the students' expectations, experiences and evaluations of their college years. Data about the effect of college on its students is useful not only to college administrators. Parents, guidance counselors, current and potential students, legislators and those providing financial support need information upon which to base judgements about the institution.

Research on college students has, of course, been going on for years. Some is specific to an institution; some, to types of colleges. As postsecondary education has become a buyer's market, institutions are increasingly concerned with learning more about their own students.

BACKGROUND

At the State University of New York at Buffalo (SUNY/B) the Office of Student Testing and Research, part of the Division of Student Affairs, studies student expectations, experiences and evaluations. Dr. Allen Kuntz, Director of the Student Testing and Research Office, initiated the research on students in 1964. Student staff participate in all aspects of the research and results are published under the names of the student authors.[1] The current focus of research, a longitudinal project called COLLEGE STUDENT PERCEPTIONS SURVEY, was initiated in 1973. Since 1973, the CSPS, with some modification, has been administered to each incoming freshman class during summer orientation programs. Follow-up surveys of seniors were begun in 1977 and continue. This paper is one of a series of reports of data from the 1977 senior CSPS.

THE QUESTIONNAIRE

The COLLEGE STUDENT PERCEPTIONS SURVEY (CSPS) is a 300-item (give or take a few according to year), multiple-choice questionnaire with five sections: (1) high school experiences, (2) expectations of college degree, faculty, students' major and career, (3) activities and interpersonal relations, (4) family, and (5) problem areas, personal characteristics and abilities, values, and contributions of university experience. The senior version includes questions in the last four areas.

METHOD

The data which provide the basis for this paper were derived from responses to the Senior Follow-up CSPS mailed in mid-April, 1977, to a random sample of 700 seniors who had completed the Freshman CSPS in 1973 and who were registered for the spring semester and indicated that they expected to graduate in May of that year. Completed and usable surveys were returned by 241 seniors. This report is based on responses to the question, *How much has your college experience contributed to increasing your abilities, development or knowledge in each of the following areas?* Forty-three items relevant to personal, interpersonal, intellectual, educational, vocational, civic and cultural development were listed. Many of the items were drawn from students' responses to free-response questions asked in previous research. Since these items were not included in the freshman CSPS until 1975, the report is based on senior responses only. Response options were: contributed *not at all, slightly, moderately,* and *greatly*. The data were analyzed by both mean response for each item and proportion of response for each option for each item.

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[1] A listing of available research reports with a brief description of their content may be requested by writing to Student Testing and Research, 316 Harriman Library, State University of New York at Buffalo, Buffalo, New York 14214.

Data were also analyzed by the academic unit[2] with which the student's major department is affiliated. The eight categories are: Arts and Letters (18)[3], Health Sciences (29), Natural Sciences and Mathematics (40), Social Sciences (63), Engineering (36), Management (41) and Other (special and double majors) (14). The proportions in each academic unit are representative of the 1977 senior class. The level of significance used in the analysis was $p \leq .01$.

PRESENTATION OF THE DATA

Data are presented in both text and figures. When proportions of students are referred to in the text, the proportions are within two percent of the actual percentage. For convenience in writing, the five Faculties, two Schools and the Other category are referred to as Faculties.

First described are the students' perceptions of the contribution of their university experience to two areas of development commonly assumed to be a

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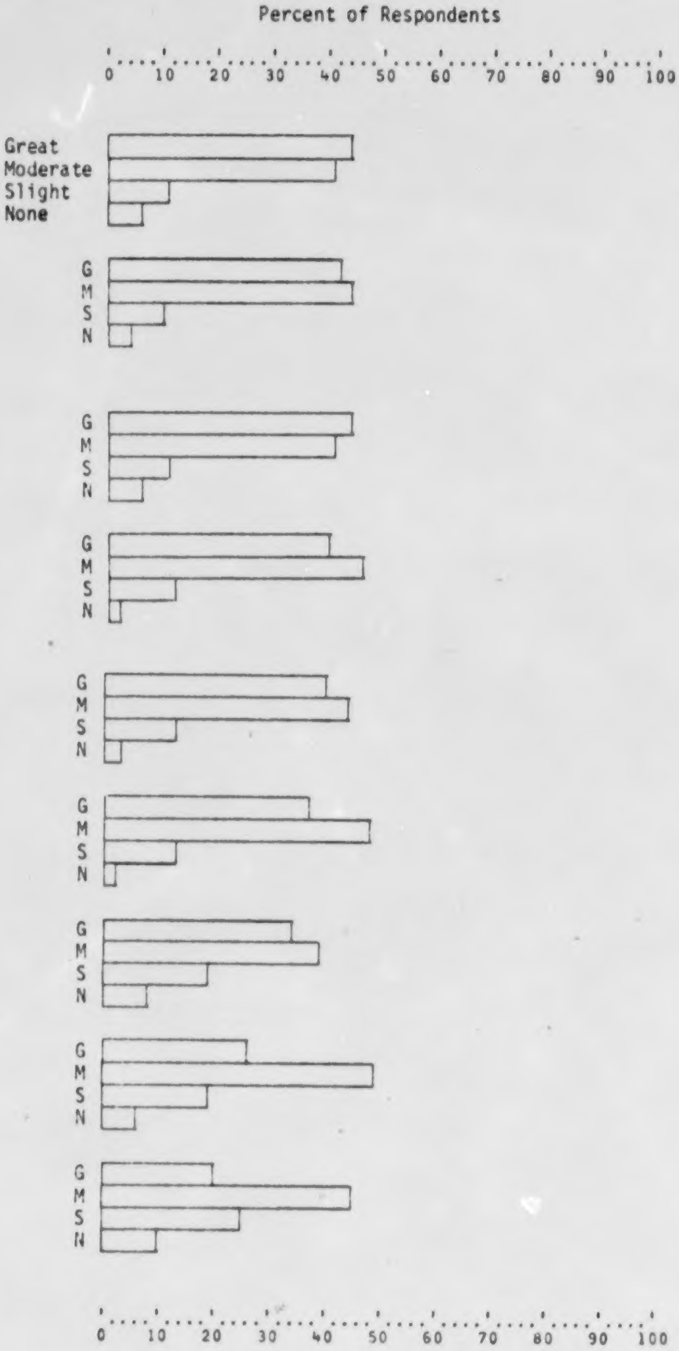
[2] Five of the academic units at SUNY/B are called Faculties, two are called Schools.

[3] Number of respondents with majors in the academic unit.

FIGURE 1

CONTRIBUTION OF COLLEGE EXPERIENCE TO INTELLECTUAL CHARACTERISTICS AND ABILITIES N=241

CHARACTERISTIC	MEAN
Openness to new experiences	3.25
Openness to new ideas	3.25
ABILITY	
Critically analyze information	3.29
Recognize/accept complexity	3.24
Apply knowledge to new situations	3.22
Integrate information	3.21
Express ideas in writing	3.00
Make commitments to ideas	2.95
Express ideas orally	2.75



responsibility of the university to all students: intellectual characteristics and skills and knowledge in academic areas. The next three areas discussed are ones assumed to be the responsibility of some Faculties of the university to those students affiliated with the Faculties or taking courses taught in them: vocational, civic and cultural development. The final focus is on two areas recognized as important but less formally addressed by the university: personal and interpersonal development. Both positive and negative perspectives of the results are included in the interpretation since knowledge of weaknesses as well as strengths is valuable in making judgements about the university.

RESULTS

Contribution to Intellectual Development

Development of intellectual characteristics and abilities is, in the opinion of many, the primary purpose of a university education. Most of the seniors in this sample said that their university experience had contributed moderately or greatly to increasing their openness to new ideas and experiences and to their abilities to critically analyze information, recognize and accept complexity, apply knowledge to new situations and to integrate information into meaningful concepts (Figure 1). These results should warm the hearts of administrators and faculty. They also should spark the interest of potential students who value intellectual development highly.

However, a fourth to a third of the students said that there was no or only a slight contribution to their ability to express ideas in writing, make commitments to ideas or to express ideas orally. We hear faculty complain about the lack of academic skills of incoming freshmen - indeed, of incoming graduate students. These data should alert faculty and administrators to the necessity of assessing programs relative to development of these skills, and of designing means of improving them.

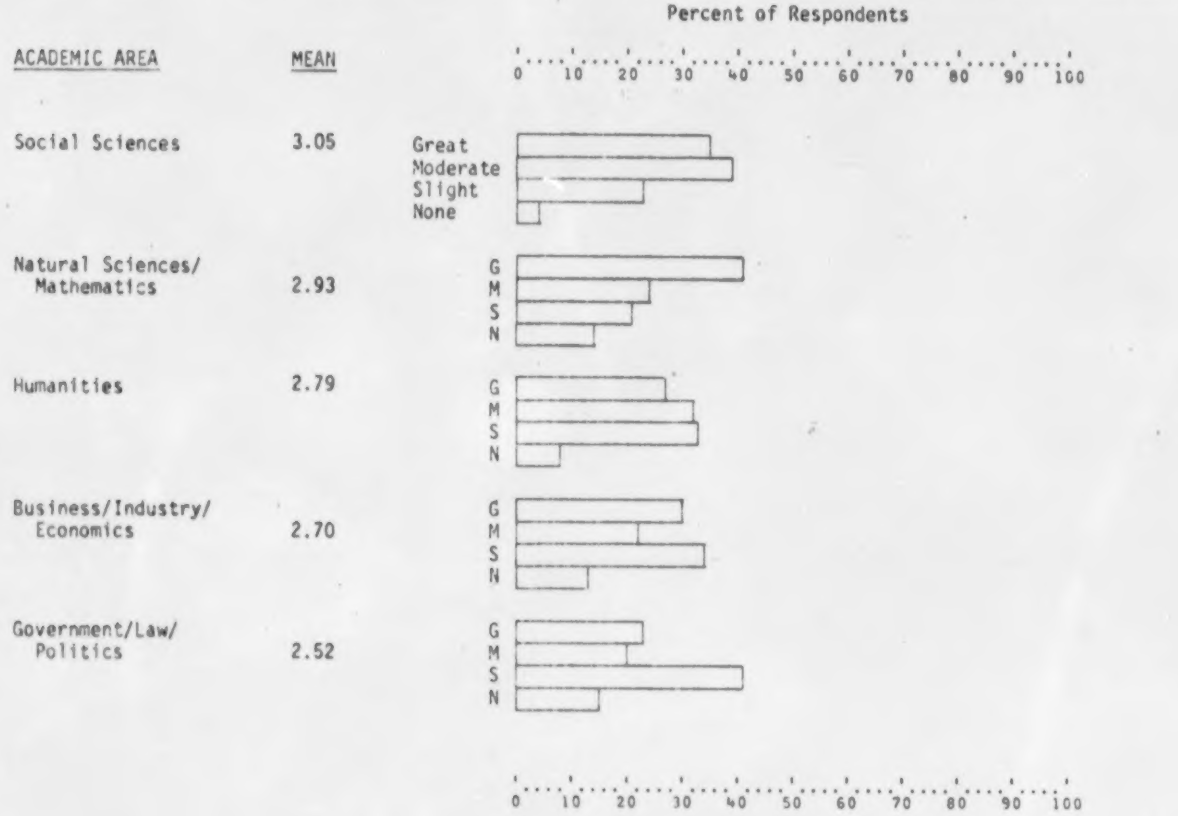
Interestingly, there were no significant differences in mean responses among Faculties to any of the items.

Educational Development

Acquisition of broad knowledge about the world in which we live might seem to be one of the most obvious outcomes of college experience. Between three-fifths and three-fourths of the seniors said their experience had contributed moderately or greatly to their knowledge of social sciences, natural sciences, and humanities (Figure 2). Only half said their college experience had contributed moderately or greatly to their knowledge of business, industry and economics. More than half reported that their knowledge of government, law and politics had been increased only slightly or not at all by their experience.

FIGURE 2

CONTRIBUTION OF COLLEGE EXPERIENCE TO EDUCATIONAL DEVELOPMENT N=241



There were significant differences in mean responses of students according to Faculty affiliation. When the mean response for each School was compared to the mean response of the other categories combined, results indicated that the contribution to knowledge of social sciences was significantly greater for students in social sciences and significantly less for those in Engineering. Increased knowledge of natural sciences and mathematics was greatest for students in the Schools of Engineering, Natural Science and Health Sciences and significantly less for all others. Knowledge of humanities increased significantly for students in Arts and Letters and Social Sciences and significantly less for those in Engineering. Increased knowledge of business, industry and economics was significantly greater for students in Management and significantly less for those in Natural Sciences, Health Sciences and Arts and Letters. The contribution to knowledge of government, law and politics was significantly greater for Social Sciences students and less for Engineering and Natural Sciences and Mathematics students.

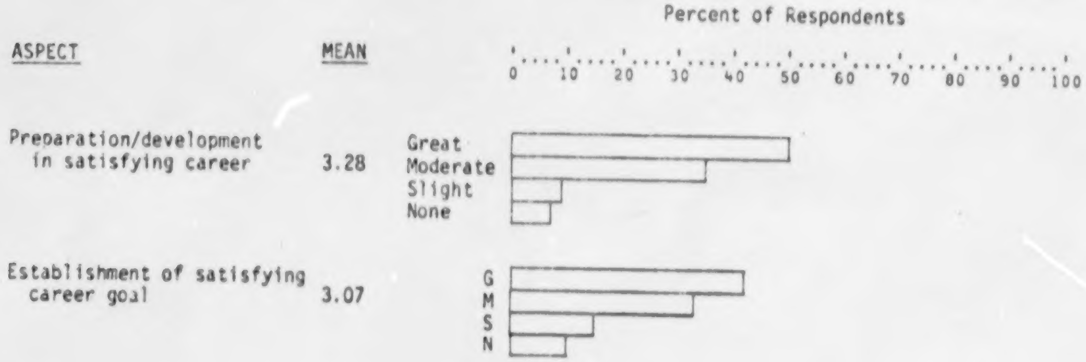
The report of slight or no contribution to knowledge in the sciences and humanities for a fourth to two-fifths of the students may reflect the limited basic and distribution requirements during the students' tenure at SUNY/B. This university, like many others, is designing a General Education program which should ameliorate this deficiency. Hopefully the plan will also place greater emphasis on students' knowledge of business, industry, economics, government, law and politics - factors which impinge powerfully on the lives of all members of society.

Vocational Development

Vocational development has traditionally been important to many students, particularly to men upon whom it has been encumbant to earn a living in their adult years. Emphasis on its importance has increased as men become less sure of obtaining a job after college graduation and as more women plan career roles.

Half of the seniors in the sample reported that their college experience had contributed greatly to their preparation for, or development in, a satisfying career. A third said it had contributed moderately (Figure 3).

FIGURE 3
CONTRIBUTION OF COLLEGE EXPERIENCE TO VOCATIONAL DEVELOPMENT N=241



The contribution was significantly greater to Health Sciences and Engineering students and significantly less to those majoring in Social Sciences.

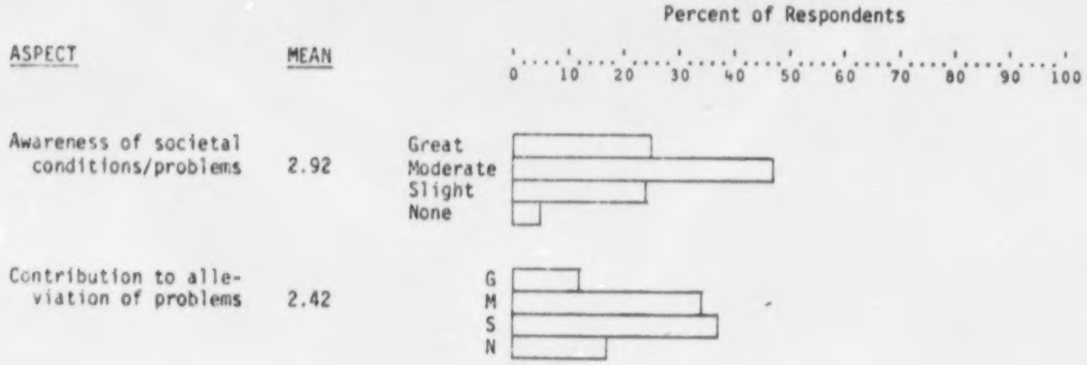
How satisfactory these results are to faculty and administrators depends on how important their students' vocational development was to them and how important vocational development was to the students themselves.

Civic Development

Recently, the University, both local and state-wide, has emphasized the importance of involvement with the surrounding community in areas such as planning and problem-solving. To explore the contribution of their university experience to the civic development of these seniors, they were asked about the increase in their awareness of societal conditions and problems, and to their contribution to alleviation of societal problems.

About seventy percent of the students reported a moderate or great contribution to their awareness of societal problems (Figure 4).

FIGURE 4
CONTRIBUTION OF COLLEGE EXPERIENCE TO CIVIC DEVELOPMENT N=241



The number is impressive. However, faculty, administrators and other taxpayers might question whether thirty percent of this sample of university seniors should have graduated perceiving little or no contribution of their college experience to their awareness of societal problems - even those related to their discipline. There were no significant differences among mean responses by Faculty affiliation, interestingly enough.

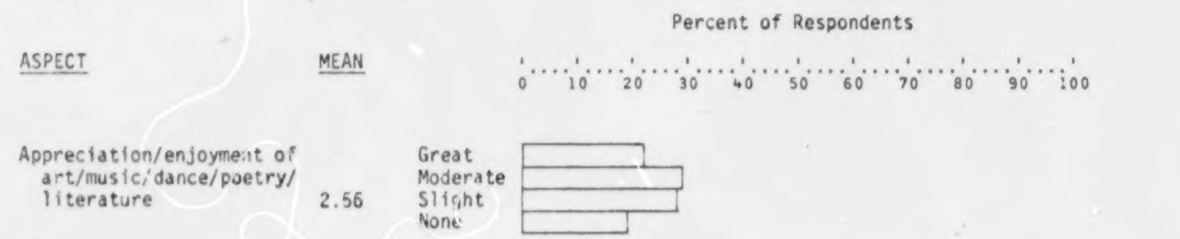
Relative to the contribution to alleviating societal problems, more than half of the seniors reported that their experience contributed slightly or not at all. Again, responses among Faculties did not differ significantly. Perhaps the most important measure of the University's contribution to students' participation in alleviation of societal problems will be the students' involvement in later years.

One way in which these data may be useful is in focusing attention on this area in evaluating the mission of the university. If it is one of the missions of the university to prepare students to identify and help solve society's problems, perhaps each department should require its students to participate in a community project related to its discipline. If more students had direct participation in such projects, they might be more sensitive to problems and more inclined to be involved in alleviation of them after leaving the University.

Cultural Development

Cultural development is sometimes assumed to be an outcome of university experience. To investigate whether this had been one of the outcomes of this sample's four years of college, we asked the students how much their university experience had contributed to increasing their enjoyment and appreciation of several cultural forms. It was both startling and dismaying to find that nearly half of the seniors said it had contributed little or nothing to increasing their appreciation and enjoyment of art, music, dance, poetry and literature (Figure 5). The exception, not surprisingly, was for students in Arts and Letters, for which the contribution was significantly greater than to students in other Faculties.

FIGURE 5
CONTRIBUTION OF COLLEGE EXPERIENCE TO CULTURAL DEVELOPMENT N=241



These results are disturbing, especially since SUNY/B offers many and diverse cultural activities to its students. These data suggest that the nature and availability of these activities should be examined.

One of the goals of the General Education program which will be initiated at SUNY/B in fall, 1979, is to encourage greater cultural development of students. The follow-up of students who participate in the program should prove interesting.

Contribution to Personal Development

Our research over the last fifteen years indicates that their personal growth is extremely important to our students. We asked the seniors about the contribution of their university experience to a number of aspects of their personal development. The characteristics and abilities we asked about are ones which can contribute significantly to satisfaction with one's self and one's life. Many of the seniors said that their experience had contributed moderately or greatly to most of the characteristics listed (Figure 6). It contributed most to their intellectual self-confidence and to their self-knowledge - both in terms of their strengths and weaknesses, and in terms of their values and beliefs. Two-thirds to three-fourths of the students said it had contributed moderately or greatly to their self-acceptance, ability to make decisions, to their social self-confidence, self-discipline and to their integrity (defining and living by values they believe in). The contribution was somewhat less to increasing their consideration of others.

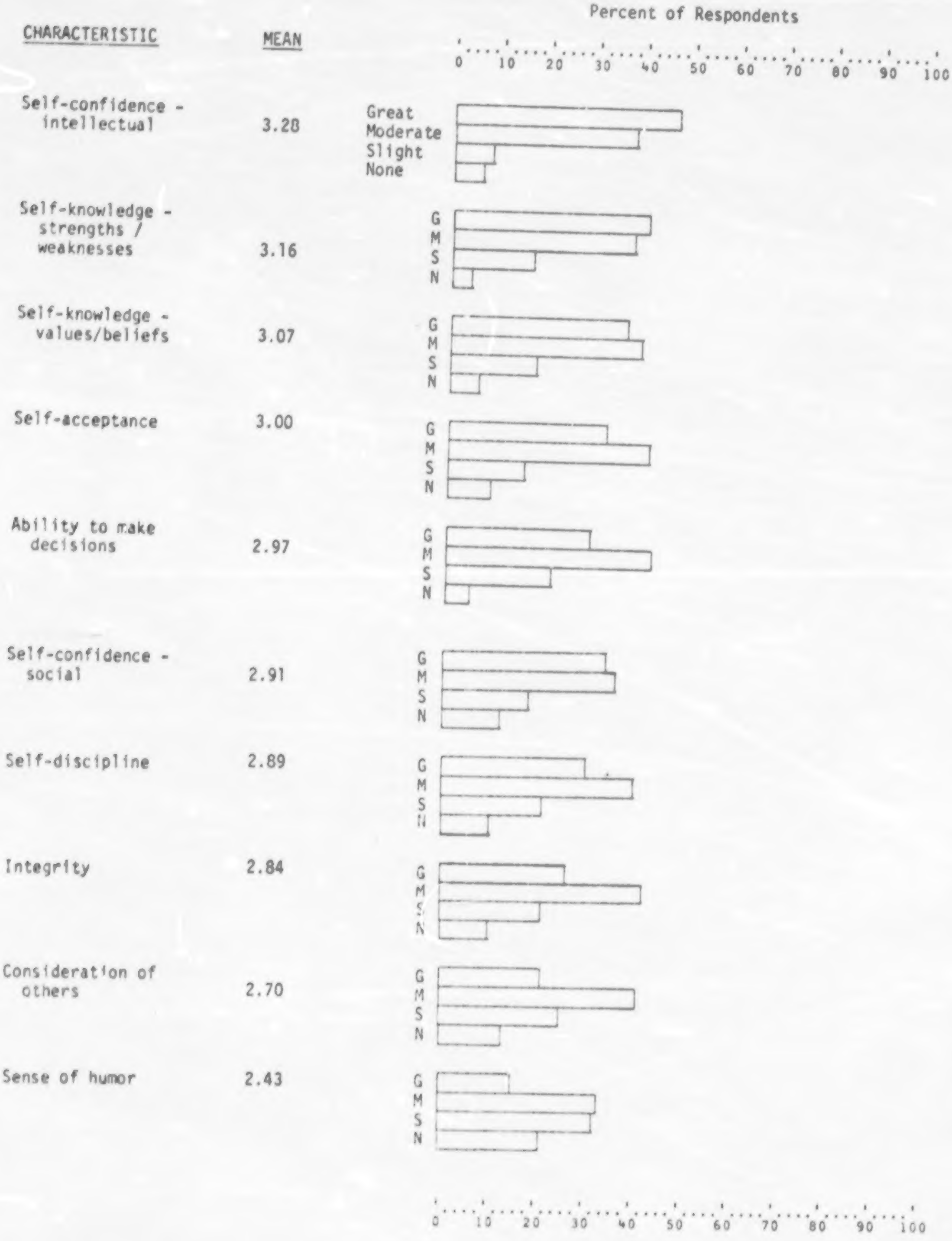
The students indicated that of the characteristics listed, their university experience had contributed least to their sense of humor. One might hope that the seniors' four years of experience with faculty and administrators had lent a little subtlety and sophistication to their freshman humor.

While their university experience contributed to the personal development of many of the seniors, for some the contribution was limited. A fourth to more than a third of the students indicated that four years of college experience had contributed little or nothing to increasing their ability to make decisions, their social self-confidence, self-discipline, integrity or consideration of others.

We also asked about another aspect of personal development - ability to cope with some common experiences that may be stressful. The seniors reported that their experience in college contributed most to their ability to cope with

FIGURE 6

CONTRIBUTION OF COLLEGE EXPERIENCE TO PERSONAL CHARACTERISTICS N=241



responsibility and competition; somewhat less to coping with disappointment, frustration and peer pressure (Figure 7). It contributed least to coping with failure, sexual desire, anger, loneliness and fear. More than half said it contributed only slightly or not at all to the last four.

These are responses of seniors who remained in college for four years. Administrators might well wonder to what degree difficulty in coping with loneliness, anger and fear contributed to attrition of freshmen and sophomores. Other questions meriting consideration are: should the university be directly responsible for development of programs to enhance the personal characteristics of students? Should it be encumbant on the university to teach young people to cope better with stressful experiences which are part of life?

There was only one significant difference among the Faculties. It would be interesting to know why the contribution was significantly greater for students majoring in Natural Sciences and Mathematics and those with special or double majors, to increasing their ability to cope with sexual desire.

Interpersonal Development

Interpersonal relationships pervasively affect the quality of life at all stages of development. It is encouraging to note that many of the seniors in this sample perceived their college experience to have contributed at least moderately to their understanding of others' values and their acceptance of others' differences, and their ability to relate well to others, establish and maintain relationships that encourage the development and growth of each person, and to their ability to establish and be comfortable with various degrees of intimacy and trust in relationships (Figure 8). Slightly more than half of the students said their experience at college contributed to an increased ability to make and honor commitments to a long-term relationship. There were no significant differences by Faculty affiliation.

FIGURE 7

CONTRIBUTION OF COLLEGE EXPERIENCE TO COPING ABILITY N=241

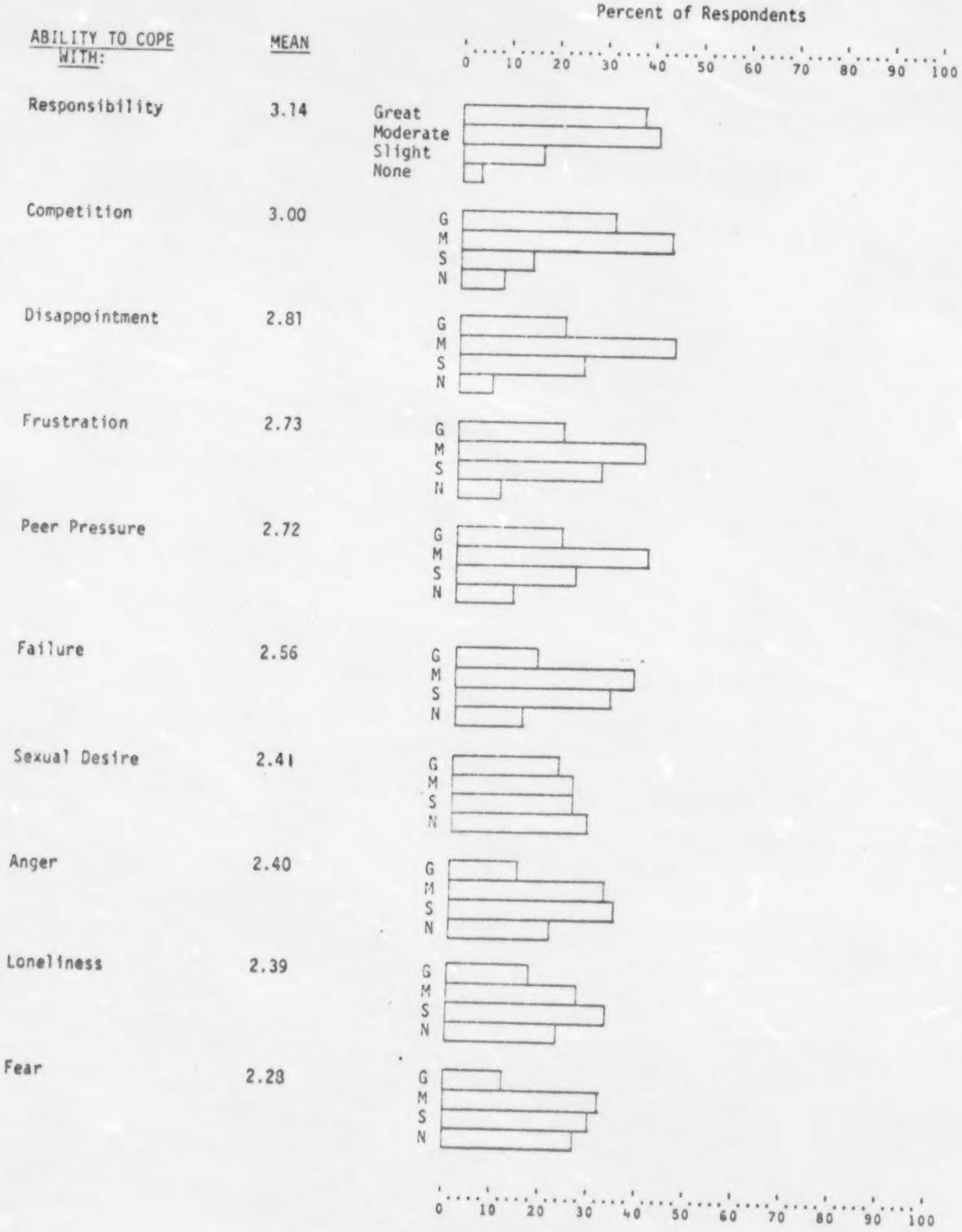
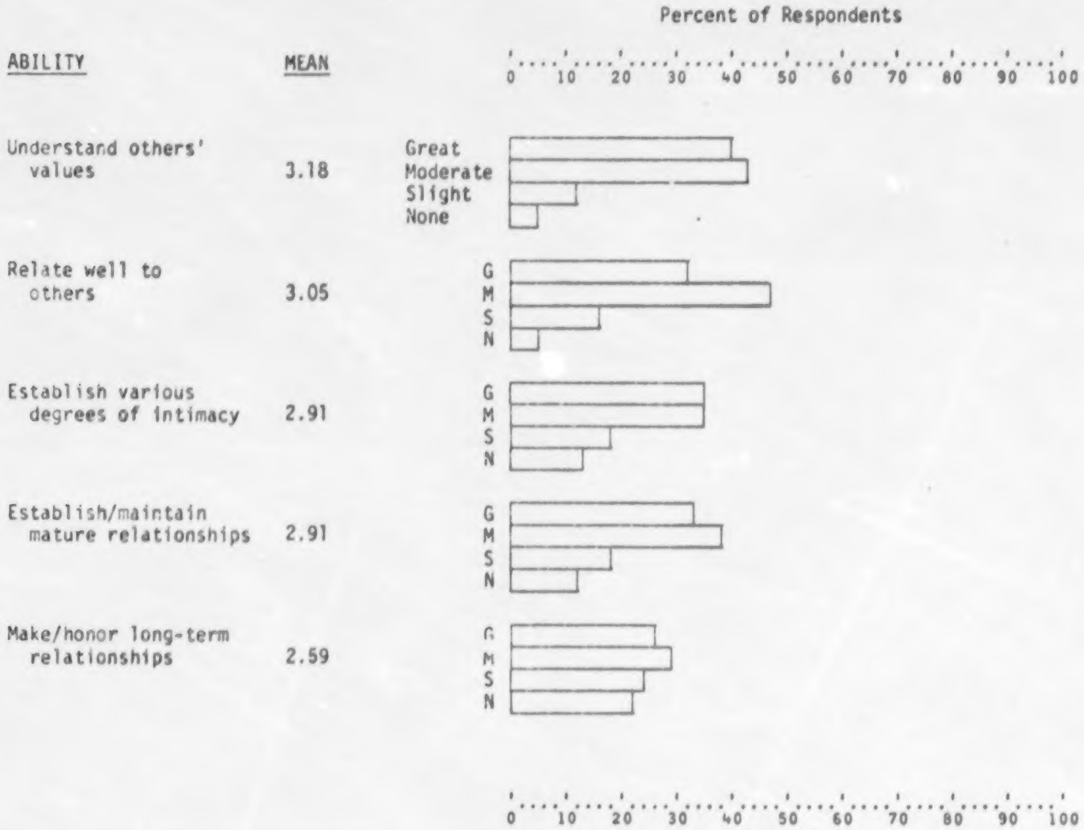


FIGURE 8

CONTRIBUTION OF COLLEGE EXPERIENCE TO INTERPERSONAL ABILITIES N=241



Administrators should find these results both satisfying and useful in helping to counteract the stereotype of an impersonal environment associated with a large university. However, attention should be given to the students for whom their experiences contributed little or nothing to these social skills. The abilities listed are important to a satisfying life for most adults. Administrators might well consider what the university's role should be relative to their development.

CONCLUSIONS

A wide variety of people who make judgements about a college can benefit from knowledge of students' perceptions of the contribution their college experience made to various aspects of their development. The information can be used in assessing the mission of the college and in identifying aspects of the college experience that need improvement. The information can also be used in publicizing qualitative dimensions of the college experience which enhance the image of the college.

Students who responded to the survey also benefitted from it. It provided an opportunity for them to assess their characteristics and abilities, the development of them, and the contribution made by their four years of college experience to that development.

FURTHER RESEARCH

The self-perceptions and expectations of freshmen relative to the items addressed in this paper and follow-up surveys of both students who leave the university and those who remain will be valuable. Analysis of the data by sex and residence status may also help in identifying those groups to which programs for improvement of the college experience should be addressed. Additionally, efforts should be made to investigate what students perceive contributed to their development during college. These projects are presently planned or underway at SUNY/B.

APPENDIX

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Fifth Annual Conference

October 12-14, 1978

University Park, Pennsylvania

INSTITUTIONAL RESEARCH: NEW RESPONSES TO NEW DEMANDS

2:00 p.m. OPENING SESSION, Room 313

Welcome: Eric Brown, Program Chairman

2:00 "Analysis of a Major Body of Institutional Research Studies Conducted in the Northeast, 1972-1977: What Should Be Some New Responses"

H. R. Kells, Rutgers University
Robert Kirkwood, Middle States Commission on Higher Education

CONCURRENT TOPICAL PRESENTATIONS

	MARKET RESEARCH: A NEW DEMAND ON INSTITUTIONAL RESEARCH Room 313 Convener: Carl A. Lindsay Penn State		THREE PERSPECTIVES ON INSTITUTIONAL RESEARCH IN THE MASSACHUSETTS HIGHER EDUCATION SYSTEM Room 305 Convener: Robert F. Grose Amherst College
2:30	"Confronting the Problems of Market Research" Linda Michaels Patricia Morrow Stockton State College	2:30	"State College Central Offices: A Problem in Communication" Loren Gould Worcester State College
3:00	Coffee Break – Cafeteria, Ground Floor		
3:30-4:00	"Assessing the Effectiveness and Propriety of Merit-Bases Scholarships" Peter T. Farago Boston University	3:30	"Regrooming Horses Already in the Stable: A case study of the use of a basic information system to assist in new policy formulation for current programs" William Lauroesch Mary Quilling Kenneth Songer University of Massachusetts–Amherst
4:00-4:30	"Why They Didn't Apply" Michael E. Baker Carnegie-Mellon University		THE NEW DIMENSION OF ACCOUNTABILITY: MEASURING OUTCOMES Convener: Dale Marchand Indiana University of Pennsylvania
4:30	"Forecasting the Adult Higher Education Market: The Beginning" J. David Smith Indiana University	4:15	"Rhode Island Outcome Measures Project" Peter N. Woodberry R.I. Department of Education
5:00	"Competition in Higher Education: Some Boston College Research Findings" Robert Lay Boston College	4:45	"The Use of Student Outcome Data: The Experience of One Large Public University" Paul Kenepp James Slick Penn State

Thursday, October 12 (cont.)

5:30	**Cash Bar, Nittany Lion Inn, Lounge**
6:30	**Conference Banquet and Keynote Address, Nittany Lion Inn, Assembly Room** **"Politics and Education: The Odd Couple"** **Dr. Edward C. McGuire** **Chancellor, Massachusetts Board of Higher Education**

Friday, October 13

	NEW FACULTY ISSUES Room 313 Convener: William F. Dorrill Ohio University		NEW FOCUS ON RETENTION Room 305 Convener: Allen H. Kuntz SUNY/Buffalo
8:30 a.m.	"Developing New Policy on Part-Time Faculty: The Penn State Experience" Edward H. Klevans Deborah R. Klevans Ray T. Fortunato G. Gregory Lozier Richard D. Sheeder Penn State	8:30 a.m.	"Contribution of Longitudinal Research on Students to Understanding Factors Related to Retention". Part I
		8:30	"Report of Major Findings of the SUNY-wide Committee on Retention Improvements" Allen H. Kuntz
9:30	"Organization for Labor Relations in Higher Education" Jacqueline B. Lewis Rutgers University	8:40	Introduction to SUNY/Buffalo Research Helen Wyant
		8:45	Panel Presentation of Results of Longitudinal Research on SUNY/Buffalo Students Related to Retention: Academic and Institutional Factors Panel Members H. William Coles, III Larene Hoelcle Allen H. Kuntz, Chairman Hedwig S. Lewandowski David L. Nichols Paul A. Succop Helen S. Wyant

10:00	Coffee Break

	STATEWIDE PLANNING Convener: Kathryn M. Moore Penn State		NEW FOCUS ON RETENTION (Cont.) Convener: Allen H. Kuntz SUNY/Buffalo
10:30	"Ambiquities in Statewide Planning for Higher Education" Robert D. Newton Penn State		"Contribution of Longitudinal Research on Students to Understanding Factors Related to Retention" Part II
11:00	"Access to Four-Year Public Colleges and Universities: Present and Future Differences Among Urban, Suburban, or Rural Residents." Thomas M. Edwards Frostburg State College	10:30	Introduction to SUNY/Buffalo Research
		10:35	Panel Presentation of Results of Longitudinal Research of SUNY/Buffalo Students Related to Retention: Personal, Interpersonal, and Career Factors

Friday, October 13 (cont.)

11:30	"Minimum Effective Size and Capacity of Colleges and Universities" Gerald Scheff Paul Wing N.Y. State Education Department		**Panel Members** H. William Coles, III Lorenz Hoelcle Allen H. Kuntz, Chairman Hedwig S. Lewandowski David L. Nichols Paul A. Succop Helen A. Wyant
12:00 noon	Luncheon – Nittany Lion Inn, Assembly Room		
	INSTITUTIONAL PLANNING Room 313 Convener: Robert D. Newton Penn State		THE THREE R'S: RECRUITMENT, RETENTION AND RESEARCH (INSTITUTIONAL) Room 305 Convener: James R. Dungan Penn State
1:30 p.m.	"A Degree Program Enrollment Projection Model and Its Management Potential" David Watson, Project Consultant Rinaldo H. Toporousky		A Case Study of The Pennsylvania State University's Institutional Research Efforts
		1:30 p.m.	"Competition: How Students Choose An Institution" Ruth C. Hollinger
2:00	"NJIT Master Planning" Joseph E. Campbell New Jersey Institute of Technology	1:50	"A Geographic Perspective on Student Market Research" Louis M. Spiro
2:30	"Institutional Flexibility: The Glassboro State College Renewal Index" Mario J. Tomei Glassboro State College	2:10	"Retention: The Flip Side of Recruitment" Carol Everett
		2:30	"Putting the Pieces Together" James R. Dungan
3:00	Coffee Break		
	INSTITUTIONAL RESEARCH AND PUBLIC RELATIONS Convener: J. P. Boucher Massachusetts State College System	3:30	"Market Research and Financial Aid: The Theory of Relativity" John J. Maguire Boston College
3:30	"The Collaboration of Institutional Research and Public Relations: The Massachusetts State College System's Experience" Stephen Long, Jr. North Adams State College Susan Burkett Westfield State College Loren Gould Worcester State College J. P. Boucher Massachusetts State College System		
4:30	NEAIR BUSINESS MEETING – Room 313		
6:00	Chicken Barbecue at Stone Valley – Forestry Camp		

Saturday, October 14

7:30 a.m. **New Steering Committee Breakfast**

A FINAL LOOK AT RETENTION
Room 313
Convener: G. Gregory Lozier
Penn State

8:30 "Toward the Validation of Tinto's Model of College Student Attrition: A Review of Recent Studies"

Patric T. Terenzini
SUNY/Albany

Ernest T. Pascarella
University of Illinois

9:00 "Undergraduate Retention: Description of Student Flow Model Including Applications"

David L. Rumpf
University of Massachusetts

9:30 "Identify the Potential Dropout"

Diana M. Green
SUNY/Plattsburgh

A FINAL LOOK AT MARKETING
Room 305
Convener: James R. Dungan
Penn State

8:30 "College Preference Survey: A Research Component in Marketing Higher Education"

Sr. Ann Carmel Luciano
The College of St. Rose

9:00 "Predicting Applicant Pool Quality Changes from Decreases in Pool Size"

Simeon P. Slovacek
Cornell University

9:30 "Modeling Future Markets"

Arthur Doyle, C.E.E.B.

10:00 Coffee Break

DOLLARS AND SENSE

Convener: Charles Blunt
Penn State

10:30 "The Economic Impact of Independent Higher Education"

Diane L. Gay
Commission on Independent Colleges and Universities, New York

11:00 "Achieving Comparable Program Costs"

Dale P. Marchand
Indiana University of Pennsylvania

11:30 "SCUBS: A State College and University Budgeting System"

Dennis D. Bell
West Chester State College

12:00 noon Adjournment

CURRICULAR ISSUES

Convener: William H. Faricy
Montclair State College

10:30 "University and Community College Interaction: A Joint Degree Program"

Brent Shea, SUNY/Binghamton
Carl Stannard, SUNY/Binghamton

11:00 "Undergraduate Grading Patterns. Comparative and Trend Data"

Althea J. McLaughlin
University of Connecticut

11:30 "Understanding Our Clients: Survey Findings and Methods"

William H. Faricy
Montclair State College

12:00 noon Adjournment

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